

R PIERCE

Final

Supplemental Environmental Assessment P-110 Wastewater Conveyance System



Acronyms

ABV	Assault Breacher Vehicle	MSS	maritime succulent scrub
ACAM	Air Conformity Applicability Model	NAAQS	National Ambient Air Quality Standards
AC/S, ES	Assistant Chief of Staff, Environmental Security	NAVFAC SW	Naval Facilities Engineering Command Southwest
APE	Area of Potential Effect		
AT	arroyo toad	NCTD	North County Transit District
BEQ	Bachelor Enlisted Quarters	NEPA	National Environmental Policy Act
BMPs	best management practices	NHPA	National Historic Preservation Act
BO	Biological Opinion	NG	native grasslands
CAA	Clean Air Act	NNG	non-native grasslands
CAAQS	California Ambient Air Quality Standards	NNW	non-native woodland
CAGN	California gnatcatcher	NO ₂	nitrogen dioxide
CAM	cismontane alkali marsh	NO _x	nitrogen oxides
CARB	California Air Resources Board	NRHP	National Register of Historic Places
CDM	Camp, Dresser, McKee	O ₃	ozone
CEQ	Council on Environmental Quality	O.D.	outside diameter
CFR	Code of Federal Regulations	PM _{2.5}	particulate matter less than 2.5 microns in diameter
CVFWO	California Fish and Wildlife Office	PM ₁₀	particulate matter less than 10 microns in diameter
cm	centimeter(s)	ppm	parts per million
CO	carbon monoxide	PPV	Public-Private Venture
CSS	coastal sage scrub	RAQS	Regional Air Quality Strategy
CSS(P)	coastal sage scrub, <i>Baccharis pilularis</i> dominated	ROI	region of influence
CVFM	coastal and valley freshwater marsh	RONA	Record of Non-Applicability
CWA	Clean Water Act	RPS	Reclaimed Pump Station
D	disturbed areas	RWQCB	Regional Water Quality Control Board
DEV	developed	SCMs	Special Conservation Measures
DIST	distributed	SDAB	San Diego Air Basin
DoN	Department of the Navy	SDCAPCD	San Diego County Air Pollution Control District
EA	Environmental Assessment	SDG&E	San Diego Gas & Electric
EIS	Environmental Impact Statement	SIP	State Implementation Plan
EO	Executive Order	SMP	Soil Management Plan
ES	Environmental Security	SO ₂	sulfur dioxide
ESA	Endangered Species Act	SR	State Route
EUC	eucalyptus woodlands	SRTTP	Southern Region Tertiary Treatment Plant
FMD	Facilities Maintenance Department	STP	Sewage Treatment Plant
ft	foot/feet	SWF	southwestern willow flycatcher
FY	fiscal year	SWPPP	Stormwater Pollution Prevention Plan
GIS	Geographic Information System	SWRCB	State Water Resources Control Board
ha	hectare(s)	SWRF	southern arroyo willow riparian forest
HDPE	High Density Polyethylene	SWS	southern willow scrub
I	Interstate	TAPS	tertiary area pump station
in	inch(es)	TLB	thread-leaved brodiaea
km	kilometer(s)	TTP	Tertiary Treatment Plant
kV	kilovolts	USACE	United States Army Corps of Engineers
LMB	Land Management Branch	U.S.C.	United States Code
LBV	least Bell's vireo	USAF	United States Air Force
LGP	Lemon Grove Pond(s)	USFWS	United States Fish and Wildlife Services
m	meter(s)	USMC	United State Marine Corps
µg/m ³	micrograms per cubic meter	USEPA	United States Environmental Protection Agency
MBTA	Migratory Bird Treaty Act	VOCs	Volatile Organic Compounds
MCB	Marine Corps Base	WUS	non-wetland water(s) of the U.S.
MCO	Marine Corps Order		
MG	mixed grassland(s)		
mgd	million gallons per day		
mph	miles per hour		

**DEPARTMENT OF DEFENSE
UNITED STATES MARINE CORPS
FINDING OF NO SIGNIFICANT IMPACT
FOR THE P-110 WASTEWATER CONVEYANCE SYSTEM PROJECT,
MARINE CORPS BASE, CAMP PENDLETON, CALIFORNIA**

SAN DIEGO REGIONAL
WATER QUALITY
CONTROL BOARD

2008 APR -2 P 3: 59

Pursuant to the Council on Environmental Quality regulations (40 CFR §1500-1508) implementing procedural provisions of the National Environmental Policy Act (NEPA) (42 USC §4321 *et seq.*) and the U.S. Navy Procedures for Implementing NEPA (32 CFR 775), as described in Operational Navy Instruction 5090.1B and Marine Corps Order P5090.2A, the U.S. Marine Corps (USMC) gives notice that a Supplemental Environmental Assessment (EA) has been prepared and an Environmental Impact Statement (EIS) will not be prepared for the P-110 Wastewater Conveyance System Project at Marine Corps Base (MCB) Camp Pendleton, California. Based on the analysis provided in the Supplemental EA, I find that the Proposed Action will not have a significant impact on the human environment, and, therefore, an EIS is not needed.

Background: The Proposed Action was developed as part of a long-term compliance strategy involving the construction of a regional tertiary treatment plant (TTP) with the goal of maximizing wastewater reuse at MCB Camp Pendleton. MCB Camp Pendleton proposed the construction and operation of a regional TTP, associated wastewater conveyance pipelines, facilities, and reclaimed water reuse areas. This proposal was analyzed in the April 2004 *Final Environmental Impact Statement for the Tertiary Treatment Plant and Associated Facilities, MCB Camp Pendleton* (TTP EIS). Since the preparation of the TTP EIS, the regional TTP (now termed the Southern Region TTP [SRTTP]) has been constructed and design of the conveyance lines and reclaimed water lines in reuse areas is ongoing. As the design has progressed, additions and modifications to the original design (presented in the TTP EIS) were determined necessary. Therefore, the Supplemental EA was prepared to provide environmental analyses for actions that were not previously identified in the TTP EIS.

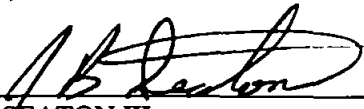
Proposed Action: The Proposed Action is to construct, operate, and maintain wastewater conveyance and reclaimed water pipelines and associated facilities at MCB Camp Pendleton, California. The components of the Proposed Action analyzed in the Supplemental EA consist of those additions and modifications to the wastewater conveyance pipeline system and associated facilities which were not analyzed in the TTP EIS.

Alternatives: The Supplemental EA addresses the Proposed Action and the No Action Alternative.

Summary of Environmental Effects: The Supplemental EA analyzes the potential environmental impacts resulting from the implementation of the Proposed Action. The resources most likely to be affected by this action are biological resources, cultural resources, air quality, and utilities.

The Proposed Action will have negligible impacts on the quality of the local environment and will comply with all regulatory requirements. Regarding listed species, the Proposed Action will be conducted in compliance with the terms and conditions, special conservation measures, and avoidance and minimization measures specified in the Biological Opinion provided by the USFWS to the USMC as a result of the formal consultation associated with the SRTTP and associated facilities project. A Biological Resources Letter Report presenting the potential impacts and special conservation measures to be implemented to avoid and/or minimize impacts associated with the P-110 Wastewater Conveyance System Project was provided to the USFWS. The California Office of Historic Preservation raised no objections to the USMC's determination that the project would have no adverse effect to archaeological resources. A Record of Non-Applicability for Clean Air Act General Conformity requirements has been prepared and approved for this project. There are no cumulative effects associated with this project beyond those already identified and assessed in the TTP EIS.

Findings: Based on information gathered during preparation of the EA, the USMC finds that the Proposed Action, construction of the P-110 Wastewater conveyance system, will not significantly impact the human and natural environments. Results of the EA concluded with a Finding of No Significant Impact (FONSI). The Supplemental EA and FONSI addressing this action is on file and may be reviewed by interested parties at the place of origin: Commanding Officer, Marine Corps Base (Attn: Assistant Chief of Staff, Environmental Security), Camp Pendleton, California 92055-5010, telephone (760) 725-4512.



J.B. SEATON III
Colonel, U.S. Marine Corps
Commanding Officer
Marine Corps Base, Camp Pendleton

6 Mar 07
Date

FINAL
ENVIRONMENTAL ASSESSMENT

Lead Agency for the EA: United States Marine Corps
Title of Proposed Action: P-110 Wastewater Conveyance System
Affected Jurisdiction: San Diego County
Designation: Supplemental Environmental Assessment

Abstract

The United States Marine Corps has prepared this Supplemental Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969, 42 United States Code §§ 4321-4370d, as implemented by the Council on Environmental Quality Regulations, 40 Code of Federal Regulations Parts 1500-1508. The Proposed Action is to construct and operate wastewater conveyance pipelines and related facilities at Marine Corps Base Camp Pendleton, California. This Supplemental EA evaluates the potential environmental impacts of the Proposed Action and the No Action Alternative on the following resource areas: Biological Resources, Cultural Resources, Air Quality, and Utilities.

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February 2007

EXECUTIVE SUMMARY

The United States Marine Corps (USMC) has prepared this Supplemental Environmental Assessment (EA) pursuant to the National Environmental Policy Act of 1969, the Council on Environmental Quality regulations under 40 Code of Federal Regulations Parts 1500-1508 and Marine Corps Order P5090.2A.

The USMC proposes to construct, operate, and maintain wastewater conveyance pipelines and associated facilities at Marine Corps Base (MCB) Camp Pendleton, California. The purpose of the Proposed Action is to achieve compliance with the requirements outlined in the April 2004 *Final Environmental Impact Statement for the Tertiary Treatment Plant and Associated Facilities, MCB Camp Pendleton* (TTP EIS) that stipulated the need to update the regulatory agencies once specific conveyance line/associated facilities locations and associated potential impacts were identified. As part of the long-term compliance strategy identified in the TTP EIS, construction and operation of the wastewater conveyance pipelines and associated facilities would allow MCB Camp Pendleton to meet regulatory standards and increase the reuse of reclaimed water on Base. The Proposed Action is needed to accommodate numerous project design changes and additions to the construction effort.

Construction of wastewater conveyance pipelines and related facilities were analyzed in the aforementioned TTP EIS; however, modifications have occurred during the design phase of the project which necessitates additional environmental analyses. This Supplemental EA evaluates areas to construct conveyance facilities not previously analyzed in the TTP EIS, as well as the addition of associated facilities such as pump stations and power poles. The Proposed Action and the No Action Alternative are evaluated in this Supplemental EA. The No Action Alternative is not considered a viable alternative because it does not meet the purpose of and need for the Proposed Action, but it does provide a measure of the baseline conditions against which the impacts of the Proposed Action can be compared.

The following resource areas were evaluated for potential environmental consequences: Biological Resources, Cultural Resources, Air Quality, and Utilities. The potential environmental consequences associated with implementation the Proposed Action, as well as the No Action Alternative, are summarized in Table ES-1. For a detailed description and analysis, refer to Chapter 3, *Affected Environment and Environmental Consequences*. As shown in Table ES-1, implementation of the Proposed Action or the No Action Alternative would not result in significant impacts to any resource area. The No Action Alternative would not, however, allow MCB Camp Pendleton to comply with the regulatory requirements. Based on the analysis presented in this Supplemental EA, the USMC has identified the Proposed Action as the preferred alternative.

Table ES-1. Summary of Environmental Consequences

<i>Resource Area</i>	<i>Proposed Action</i>	<i>No Action Alternative</i>
Biological Resources	•	•
Cultural Resources	•	•
Air Quality	•	•
Utilities	•	•

•: indicates that no significant impact would occur

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P-110 WASTEWATER CONVEYANCE SYSTEM
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CHAPTER 1

PURPOSE AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

This Supplemental Environmental Assessment (EA) has been prepared by the United States Marine Corps (USMC) in accordance with the National Environmental Policy Act (NEPA) of 1969. This Supplemental EA describes the potential environmental consequences resulting from a proposal to construct, operate, and maintain wastewater conveyance facilities at Marine Corps Base (MCB) Camp Pendleton, California.

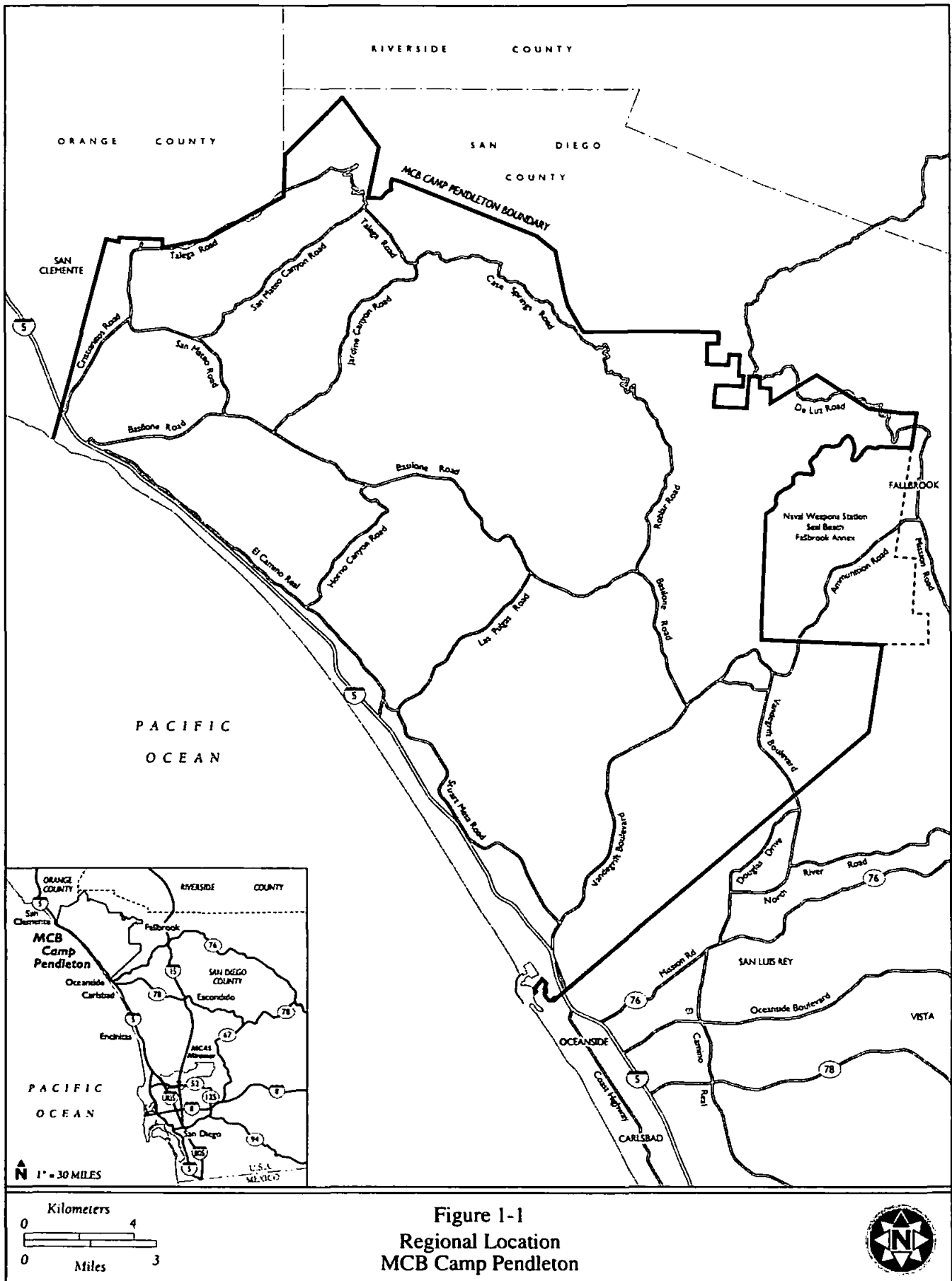
1.2 BACKGROUND

The Proposed Action was developed as part of a long-term compliance strategy involving the construction of a regional tertiary treatment plant (TTP) and the maximization of wastewater reuse at MCB Camp Pendleton. The compliance strategy was developed in response to a Consent Decree, approved by the U.S. District Court for the Southern District of California, which stipulated that a solution for ceasing violations of wastewater discharge standards under the Clean Water Act must be obtained by the summer of 2004. In response to this decree, MCB Camp Pendleton proposed the construction and operation of a regional TTP, associated wastewater conveyance pipelines, facilities, and reclaimed water reuse areas. This proposal was analyzed in the April 2004 *Final Environmental Impact Statement for the Tertiary Treatment Plant and Associated Facilities, MCB Camp Pendleton* (TTP EIS). Additional details regarding the Consent Decree, historic compliance with wastewater standards, and the facilities proposed as part of the long-term compliance strategy can be found in the TTP EIS.

Since the preparation of the TTP EIS, the regional TTP (now termed the Southern Region TTP [SRTTP]) has been constructed and design of the conveyance lines and reclaimed water lines in reuse areas is underway. As the design has progressed, additions and modifications to the original design (presented in the TTP EIS) were determined necessary. Therefore, this Supplemental EA is being prepared to provide environmental analyses for actions that were not identified in the TTP EIS. Details regarding components of the Proposed Action are outlined in Chapter 2, section 2.1 of this Supplemental EA.

1.3 PROJECT LOCATION

The Proposed Action would be implemented at MCB Camp Pendleton, the USMC's major amphibious training center for the West Coast (Figure 1-1). MCB Camp Pendleton is a 200-square mile (518-square kilometer) area located primarily within the northern portion of San Diego County, 40 miles (64 kilometers [km]) north of downtown San Diego. The Orange County line is contiguous with the northwest boundary of MCB Camp Pendleton; Riverside County is to the north but not adjacent to the boundary of MCB Camp Pendleton. The City of San Clemente and the Cleveland National Forest border MCB Camp Pendleton to the north and east, with the community of Fallbrook and the Naval Weapons Station-Seal Beach/Fallbrook Detachment to the east, and the City of Oceanside to the south. Regional access from the west of MCB Camp Pendleton is provided by Interstate (I)-5; inland access is provided by I-15, located to the east, and State Route (SR)-78, which is located south of MCB Camp Pendleton.



The study area is located in the southern portion of MCB Camp Pendleton (Figure 1-2). The conveyance line corridors associated with the SRTTP originate in the Stuart Mesa area on MCB Camp Pendleton and encompass areas running northeast from the SRTTP (including the golf course, Gooseneck Lake, Horse Lake, Horse Pasture, and Sewage Treatment Plant [STP] 2), and an area southwest of the Marine Corps Air Station near STP 3.

1.4 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to achieve compliance with the requirements outlined in the TTP EIS that stipulated the need to update the regulatory agencies once specific conveyance line/associated facilities locations and associated potential impacts were identified. As part of the long-term compliance strategy identified in the TTP EIS, construction and operation of the wastewater conveyance pipelines and associated facilities would allow MCB Camp Pendleton to meet regulatory standards and increase the reuse of reclaimed water on Base. The Proposed Action is needed to accommodate numerous project design changes and additions to the construction effort.

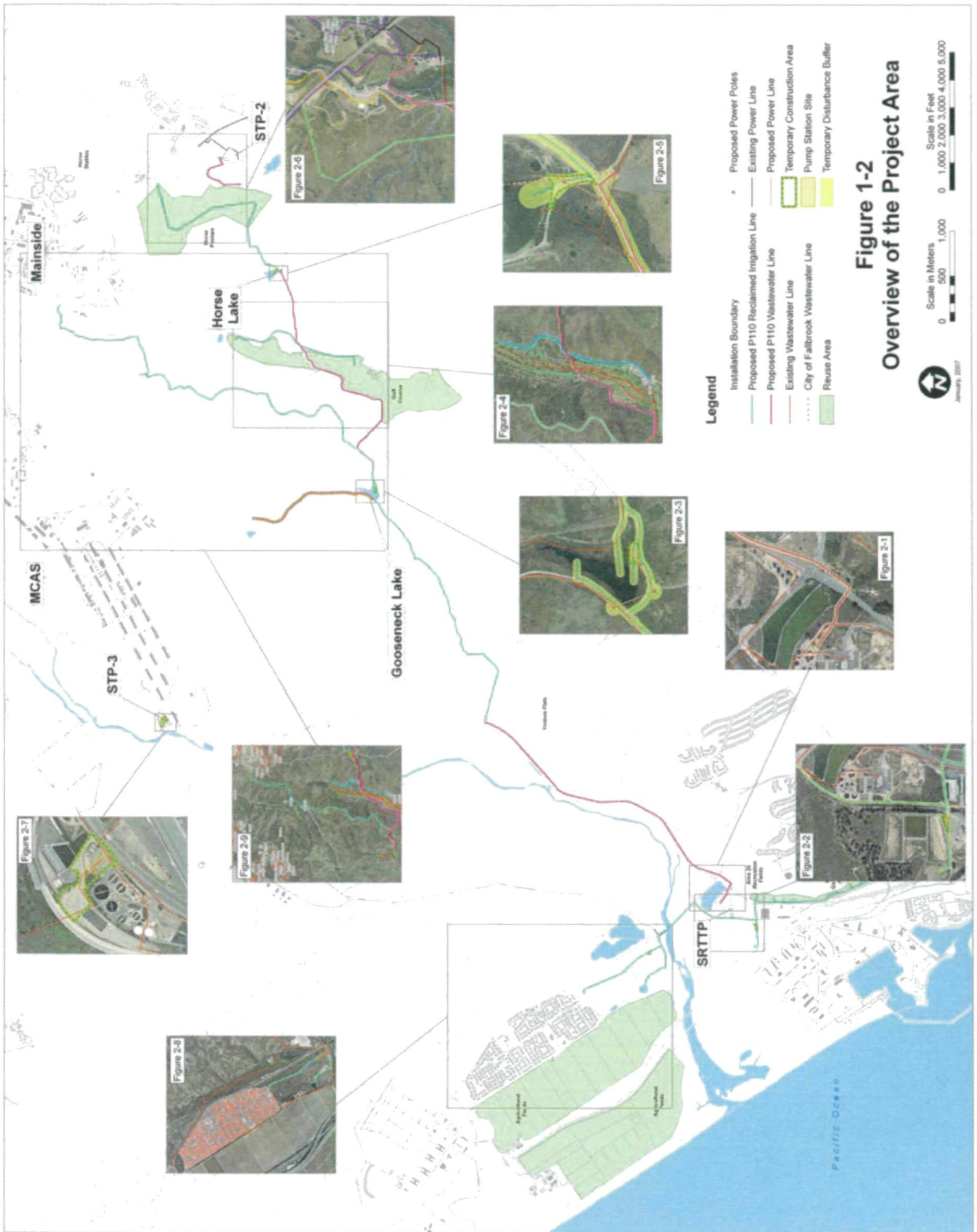
1.5 THE ENVIRONMENTAL REVIEW PROCESS

This Supplemental EA has been prepared based on NEPA requirements as outlined in the following guidance documents:

- NEPA of 1969 (42 U.S. Code (U.S.C.) §§ 4321-4370d), which requires an environmental analysis for major federal actions having the potential to significantly impact the quality of the human environment;
- Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500-1508), which implement the requirements of NEPA;
- Department of the Navy (DoN) procedures for implementing NEPA (32 CFR Part 775), which provides DON policy for implementing the CEQ regulations and NEPA;
- Marine Corps Order (MCO) P5090.2A, Chapter 12, dated 10 July 1998, Environmental Compliance and Protection Manual, which establishes procedures for implementing NEPA.

This Supplemental EA has also been prepared in accordance with the following:

- National Historic Preservation Act (NHPA), 16 U.S.C. §§ 470-470x-6;
- Clean Water Act (CWA), 33 U.S.C. §§ 1251-1387;
- Clean Air Act (CAA), as amended, 42 U.S.C. §§ 7401-7671p, including 1990 General Conformity Rule;
- Endangered Species Act (ESA), 16 U.S.C. §§ 1531-1544;
- Executive Order (EO) 13186 - Responsibilities of Federal Agencies to Protect Migratory Birds and Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703-711;
- EO 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations;
- EO 13045 - Protection of Children from Environmental Health Risks and Safety Risks; and
- EO 13148 - Greening the Government through Leadership in Environmental Management.



CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

This chapter provides a detailed description of the Proposed Action and the No Action Alternative at MCB Camp Pendleton and a brief summary of the environmental impacts. The Proposed Action described in this Supplemental EA is part of a larger project previously analyzed in the TTP EIS. However, due to the need to appropriately tailor the project to current site and facility conditions, modifications/additions have occurred during the design-build phase of the project which necessitate additional environmental analyses. The components of the Proposed Action which are analyzed in this Supplemental EA consist of those additions and modifications to the wastewater conveyance pipeline system and associated facilities which were not analyzed in the TTP EIS. These components are described in detail in the following section.

2.1 PROPOSED ACTION

2.1.1 Components of the Proposed Action

The components of the Proposed Action consist of modifications to wastewater conveyance pipeline routes, dimensions of reclaimed water reuse areas, and addition of facilities such as pump stations and power poles. Detailed descriptions of the project components, including a summary of what has changed since publication of the TTP EIS, are outlined in Table 2-1. Project components not discussed in Table 2-1, but illustrated on the figures, were already addressed/analyzed in the TTP EIS.

Table 2-1. Added or Modified Components of the P-110 Wastewater Conveyance System Project

Component	Description
Pipeline from SRTTP to Bluffs (Figure 2-1)	<p><i>Description of Change:</i> Alignment from new SRTTP to the point where the pipeline crosses Vandegrift has 1) shifted north to run in the dirt road south of Twin Ponds and 2) shifted east at the intersection of Ash Road and Vandegrift Blvd.</p> <p><i>Pipeline Route:</i> Beginning at a new manhole at the SRTTP, the pipeline would first traverse easterly, crossing Vandegrift Blvd. Upon reaching the easterly side of Vandegrift Blvd., the pipeline would turn northerly and be installed east of the roadway (veering east away from the shoulder), cross Ash Road, veer back toward the shoulder of Vandegrift Blvd., and continue northerly near the easterly edge of the outside, northbound traffic lane until reaching the intersection with El Camino Real. At this intersection, the pipeline would connect to an existing 20-inch (in) (51 centimeter [cm]) pipe force main beneath the west side of the road.</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> <i>Pipeline:</i> A 50- foot (ft) (15-meters [m]) corridor 25 ft (8 m) either side of pipeline centerline) would be needed for the entire length of the pipeline during construction. <p><i>Form and Function:</i> The wastewater conveyance line consists of approximately 2.27 miles (3.65 km) of 16-in (41-cm) nominal outside diameter (O.D.) and 4.17 miles (6.71 km) of 14-in (36-cm) nominal O.D. high density polyethylene (HDPE) pipeline. The connection with the existing 20-in (51-cm) pipe force main (which carries wastewater from STP 3 southerly to the existing STP 13) would serve to transfer wastewater flow to the new 16-in (41-cm) force main and redirect the flow to the new SRTTP.</p>
Lemon Grove Pump Station/Connec. to TTP Headworks (Figure 2-2)	<p><i>Description of Change:</i> Location of a reclaimed pump station (RPS) near the southeast corner of the Lemon Grove Ponds (LGP) area, pipeline from Pond 1 to the RPS, and connection to Headworks at SRTTP.</p>

Table 2-1. Added or Modified Components of the P-110 Wastewater Conveyance System Project

Component	Description
	<p><i>Pipeline Route:</i> The pipeline would start at the RPS and run in Lemon Grove Road east, turn north following the dirt access road west of the SRTTP branching off to connect to the headworks. A new line would also be installed connecting Pond 1 to the new RPS. All other pipelines in the LGP area were addressed in the TTP EIS.</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> • <i>RPS:</i> A temporary construction site (approximately 240 ft [73 m] x 280 ft [85 m] in size) would be used for construction laydown and provide access for constructing the RPS and associated equipment. The permanent RPS site would be located within a fenced area 40 ft (12 m) x 70 ft (21 m) in size. • <i>Pipelines:</i> A 50-ft (15-m) corridor (25 ft [8 m] either side of pipeline centerline) would be needed for the entire length of the pipeline during construction. <p><i>Form and Function:</i> The RPS would consist of an at-grade pump station (20 ft [6 m] x 40 ft [12 m]), shielded by a 6 ft (2 m) high block wall and surrounded by a 40 ft (12 m) x 70 ft (21 m) fence. The RPS would receive treated effluent from the SRTTP via an existing 24-in (61-cm) pipeline. The Lemon Grove Impoundment would store reclaimed water that would be distributed via new and existing pump stations. The pipelines would convey reclaimed water from Pond 1 to the SRTTP.</p>
Gooseneck Lake Power Poles and Pump Station (Figure 2-3)	<p><i>Description of Change:</i> Provision of power to a new pump station at the southeast edge of Gooseneck Lake via overhead power lines from Pueblitos Canyon. Approximately 43 new power poles would be installed. Gooseneck Lake is no longer proposed for expansion as described in the TTP EIS. However, Gooseneck Lake would be used for storage of reclaimed water.</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> • <i>Power poles:</i> Power pole construction would require a 50-ft (15-m) corridor (25 ft [8 m] either side of power pole alignment) and 2.0 ft (0.6 m) x 2.0 ft (0.6 m) areas would be impacted at each power pole installation. • <i>RPS:</i> A temporary construction area (60 ft [18 m] x 120 ft [37 m]) would be needed for construction of the pump station. A 25-ft (8-m) temporary easement would be required on each side of the pipeline. • <i>Pipeline:</i> An approximate 16-in (41-cm) reclaimed water line would be installed around the perimeter of the lake starting on the west side along the boundary to the south side to the proposed pump station site (this route was evaluated within the 100 ft (30 m) corridor of the TTP EIS). <p><i>Form and Function:</i> The pump station would be a 30-ft (9-m) x 50-ft (15-m) structure and would receive treated effluent from the existing SRTTP effluent booster station and the new Lemon Grove RPS via the reclaimed water pipeline. Reclaimed water would then be transferred to Horse Lake via the Gooseneck Lake booster pump station.</p>
Golf Course Reclaimed Pipeline Alignment and Entrance Road Irrigation Area (Figure 2-4)	<p><i>Description of Change:</i> The irrigation pipeline would be realigned to minimize the effect on golf course operations and to allow for serpentine laying of pipeline. A new 7-acre (3-hectare [ha]) area along Golf Course Entrance Road would be irrigated.</p> <p><i>Pipeline Route:</i> The new irrigation pipeline would run along eastern side of the golf course entrance road, from the Clubhouse and to the north end of the golf course. The wastewater pipeline route crossing the golf course was altered slightly to minimize the effects on golf course operations.</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> • <i>Pipelines:</i> A 50-ft (15-m) corridor (25 ft [8 m] either side of pipeline centerline) would be needed for the wastewater pipeline as it crosses the golf

Table 2-1. Added or Modified Components of the P-110 Wastewater Conveyance System Project

Component	Description
	<p>course. The irrigation pipeline also requires a 50-ft (15-m) corridor.</p> <p><i>Form and Function:</i> The size of the pipeline and parameters of the reclaimed system are still being defined at this time; the sizes would vary depending on location and the final determination of the areas that receive reclaimed water for irrigation. Water used for irrigation for the golf course (180 acres [73 ha]) and the golf course entrance road (7 acres [3 ha] [5,000 ft [1,524 m] x 60 ft [18 m]]) would be withdrawn from Horse Lake. The function of the wastewater pipeline as it crosses the golf course was evaluated in the TTP EIS.</p>
Horse Lake Pump Station and Power Poles (Figure 2-5)	<p><i>Description of Change:</i> Location of new RPS on the southeast edge of Horse Lake. Provision of power to the new RPS at Horse Lake via overhead power lines running along an existing alignment from the filter station to the new PS. Twenty power poles would be installed. Installation of a new pipeline between Horse Lake and Gooseneck Lake.</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> • <i>RPS:</i> A temporary construction site (approximately 80 ft [24 m] x 200 ft [61 m] in size) would be used for construction laydown and provide access for constructing the RPS and associated equipment. The permanent RPS site would be located within a fenced area. • <i>Power Poles:</i> Power pole construction would require a 50-ft (15-m) corridor (25 ft [8 m] either side of power pole alignment), and a 2.0 ft (0.6 m) x 2.0 ft (0.6 m) area would be permanently impacted at each power pole installation. <p><i>Form and Function:</i> The RPS would consist of an at-grade pump station (20 ft [6 m] x 40 ft [12 m]), shielded by 6-ft (2-m) high block wall and surrounded by a 40 ft (12 m) x 70 ft (21 m) fence. The Horse Lake RPS would deliver treated effluent received from the existing SRTTP Pump Station to distribution points at the golf course and entrance road, Horse Pastures, and the Mainside Area.</p>
Horse Pasture Pipeline Alignment, STP 2 Power Poles, and Wastewater Pipeline Replacement (Figure 2-6)	<p><i>Description of Change:</i> Provision of three power poles located north and northeast of STP 2 and one power pole within the STP 2 site. The existing power supply at STP 2 is at the southern portion of the site, opposite from the proposed location of the new PS, to be situated on the northern portion of the site. The pipeline realignment and termination at Vandegrift Blvd. is due to the determination that a 9-acre (7-ha) area in the northeastern corner of the horse pasture and the horse stables would not be irrigated with reclaimed water to avoid impacts to federally listed thread-leaved brodiaea (TLB). Wastewater pipeline replacement from near the TAPS 2 location on the north side of STP 2. Addition and replacement of air vacuum air relief valves at two locations along the existing P-527B pipeline.</p> <p><i>Pipeline Route:</i> The new 14-in (36-cm) HDPE pipeline would leave the STP 2 area near the new tertiary area pump station (TAPS) 2 location on the north side of the plant. The pipeline would follow the boundary line of the plant along the north side until hitting a fenceline that runs north-south towards a dirt road. The pipeline would follow this road west until it crosses over a dirt/gravel disturbed area and over the top of three existing culverts in Pilgrim Creek. These culverts would be built up approximately 18-in (46-cm), starting about 40 ft (12 m) on either side of the crossing, and then be built to approximately two ft (0.6 m) over the pipeline located in the center of the creek crossing. A new guard rail would be added to the north side of the crossing above an existing concrete headwall. The pipeline would then extend to the southwest until it approaches the existing P-527B pipeline, then would traverse south, adjacent to and paralleling the 10-in (25-cm) diameter P-527B pipeline from STP 1 until it reaches the</p>

Table 2-1. Added or Modified Components of the P-110 Wastewater Conveyance System Project

Component	Description
	<p>intersection of the existing STP 2 discharge pipeline. At that point, the pipeline would tie into the existing P-527B 12-in (30-cm) diameter pipeline where the STP 1 and STP 2 discharge pipelines intersect.</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> • <i>Power Poles:</i> Power pole construction would require a 50 ft (15 m) corridor (25 ft [8 m] either side of power pole alignment) and a 2.0 ft (0.6 m) x 2.0 ft (0.6 m) area would be permanently impacted at each pole installation. • <i>Pipeline:</i> A 50 ft (15 m) wide construction corridor would be required. • <i>Air Vacuum Air Relief Valves:</i> At the first location, the air vacuum air relief valve would be bolted on tapping saddles along a portion of existing P-527B pipeline; no excavation would be required. At the second location, the valve would be placed on a new tapping saddle within 10 feet of an existing tapping saddle. The installation of the air vacuum air relief valve would require a 25-ft x 25-ft excavation and work area. <p><i>Form and function:</i> Power poles would support power lines to provide power to STP 2. The pipeline sizes and parameters of the reclaimed system are still being defined at this time; sizes would vary depending on location and the final determination of the areas that receive reclaimed water for irrigation. Pipelines would be 14-in (36-cm) and provide wastewater transport from STP 2 to existing wastewater systems.</p>
STP 3 New Tributary Area Pump Station (Figure 2-7)	<p><i>Description of Change:</i> Location of the STP 3 pump station to the north of the existing STP 3. Installation of a mechanical bar screen channel and submersible lift station (TAPS 3) on the southwest edge of STP 3.</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> • <i>Pump Station:</i> Construction laydown of materials for the pump station would occur in an area immediately north of the existing STP 3 fenceline. For TAPS 3, a 300 ft (91 m) x 450 ft (137 m) temporary construction area would be needed. The permanent site for facility would occupy approximately 250 ft (76 m) x 75 ft (23 m). <p><i>Form and Function:</i> TAPS 3 would pump peak wastewater flows of approximately 2.7 million gallons per day (mgd) from the tributary areas of STP 3 and STP 8 to the new SRTTP. Facilities would include a mechanical and manual bar screen vault, wet well, triplex pump station, and odor control unit.</p>
Stuart Mesa Housing and Farmer's Pond Reuse Lines, Pump Station, Holding Tank, Power Poles, and Irrigation Lines (Figure 2-8)	<p><i>Description of Change:</i> Placement of a reclaimed pipeline to deliver reclaimed water to the Farmer's Pond. Installation of a new reclaimed water pipeline to the Stuart Mesa Housing Area. Installation of a holding tank and use of the Stuart Mesa Lower Pond for reclaimed water storage for the Stuart Mesa agricultural fields and housing area. Installation of a new RPS off a dirt road that extends off of MACs Road, running parallel to Stuart Mesa Road just north of the Santa Margarita River. Placement of up to seven power poles to provide power to the RPS. Installation of an aboveground tank off of MACs Road at the proposed site of the new RPS.</p> <p><i>Pipeline Route:</i> The origin of the pipeline to Farmer's Pond at the SRTTP was evaluated in the EIS. The new portion of this line turns northwest off of MACs Road onto a dirt access road, and ends at the Farmer's Pond. The irrigation lines in the Stuart Mesa Housing Area would be connected to existing irrigation pipelines previously installed within the housing area (primarily in streets and easements).</p> <p><i>Site Construction:</i></p> <ul style="list-style-type: none"> • <i>Pipeline:</i> A 50 ft (15 m) corridor (25 ft [8 m] either side of pipeline centerline) would be needed for the entire length of the pipeline during construction.

Table 2-1. Added or Modified Components of the P-110 Wastewater Conveyance System Project

Component	Description
	<ul style="list-style-type: none"> • <i>RPS</i>: The RPS would consist of an at-grade pump station, shielded by a 6 ft (2 m) block wall and surrounded by a fenced area (40 ft [12 m] x 70 ft [21 m]). The new pump station would require a 20 ft (6 m) X 40 ft (12 m) area. • <i>Power Poles</i>: Power pole construction would require a 50-ft (15-m) corridor (25 ft [8 m] either side of power pole alignment), and a 2.0 ft (0.6 m) x 2.0 ft (0.6 m) area would be permanently impacted at each power pole installation. • <i>Holding Tank</i>: The aboveground tank would be 15 ft (5 m) diameter and 12 ft (4 m)-20 ft (6 m) tall. <p><i>Form and Function</i>: Pipeline sizes would vary depending on location and the final determination of the areas that would receive reclaimed water for irrigation. Reclaimed water from the holding tank would be pumped at the Stuart Mesa RWPS to irrigate common areas within the Stuart Mesa Housing complex.</p>
Reclaimed Water Supply to Mainside (Figure 2-9)	<p><i>Description of Change</i>: Installation of reclaimed water pipelines, use of an existing out-of-service potable water reservoir (Building 16151) to hold reclaimed water, and installation of reclaimed water lines to Mainside.</p> <p><i>Pipeline Route</i>: The pipeline would follow a dirt road just east of Gooseneck Lake until it meets a firebreak. The pipeline would be installed in the center of the firebreak all the way to the radio tower dirt access road. The pipeline would then follow this dirt access road north to the reservoir. It would depart the reservoir following a dirt road to the northeast to the junction of two roads. The line would follow the northern most road and then turn east to Mainside where it would be connected to an existing potable water irrigation system, and the reclaimed irrigation system would then need to be isolated from the potable water supply.</p> <p><i>Site Construction</i>:</p> <ul style="list-style-type: none"> • <i>Pipeline</i>: A 50-ft (15-m) corridor (25 ft [8 m] either side of pipeline centerline) would be needed for the entire length of the pipeline during construction. <p><i>Form and Function</i>: An existing 3.1-million-gallon concrete reservoir (Building 16151) on reservoir ridge would be utilized to hold reclaimed water. The pipeline would deliver reclaimed water to the Mainside area for irrigation.</p>

Source: CDM 2006

2.1.2 City of Oceanside Ocean Outfall

MCB Camp Pendleton currently has an agreement with the City of Oceanside to allow for disposal of secondary-treated effluent (secondary-treatment or better) through the City's ocean outfall (maximum discharge capacity of 3.6 mgd). The terms of the current agreement are in effect until 31 October 2008. The stated goal of this project is 100 percent reuse of effluent from the SRTTP and zero discharge through the outfall. In the case where the 100 percent reuse goal cannot be met, excess effluent (up to the maximum potential discharge capacity of 3.6 mgd) would be discharged through the outfall. This maximum potential discharge capacity is based on a "worst case" scenario (no use of reuse areas) which projects anticipated capacities at the SRTTP of 3.0 mgd during an average rainfall year and 3.5 mgd during a wet year (Camp, Dresser, McKee [CDM] 2006).



Pipeline From SRTTP to Bluffs

- Proposed P110 Wastewater Line
- Existing Wastewater Line
- Temporary Disturbance Buffer
(25' from pipeline center)

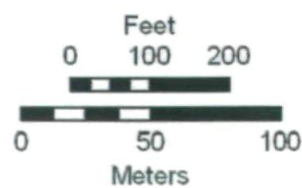
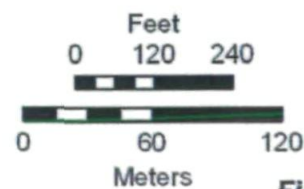


Figure 2-1



Lemon Grove Pump Station/Connection to TTP Headworks

- Proposed P110 Reclaimed Irrigation Line
- Existing Wastewater Line
- Existing Structure
- Temporary Construction Area
- Pump Station Site
- Temporary Disturbance Buffer (25' from pipeline center)





Gooseneck Lake Power Poles and Pump Station

Legend

- Proposed P110 Wastewater Line
- Existing Wastewater Line
- Proposed Power Line
- Proposed Power Poles
- Temporary Construction Area
- Pump Station Site
- Temporary Disturbance Buffer (25' from pipeline)



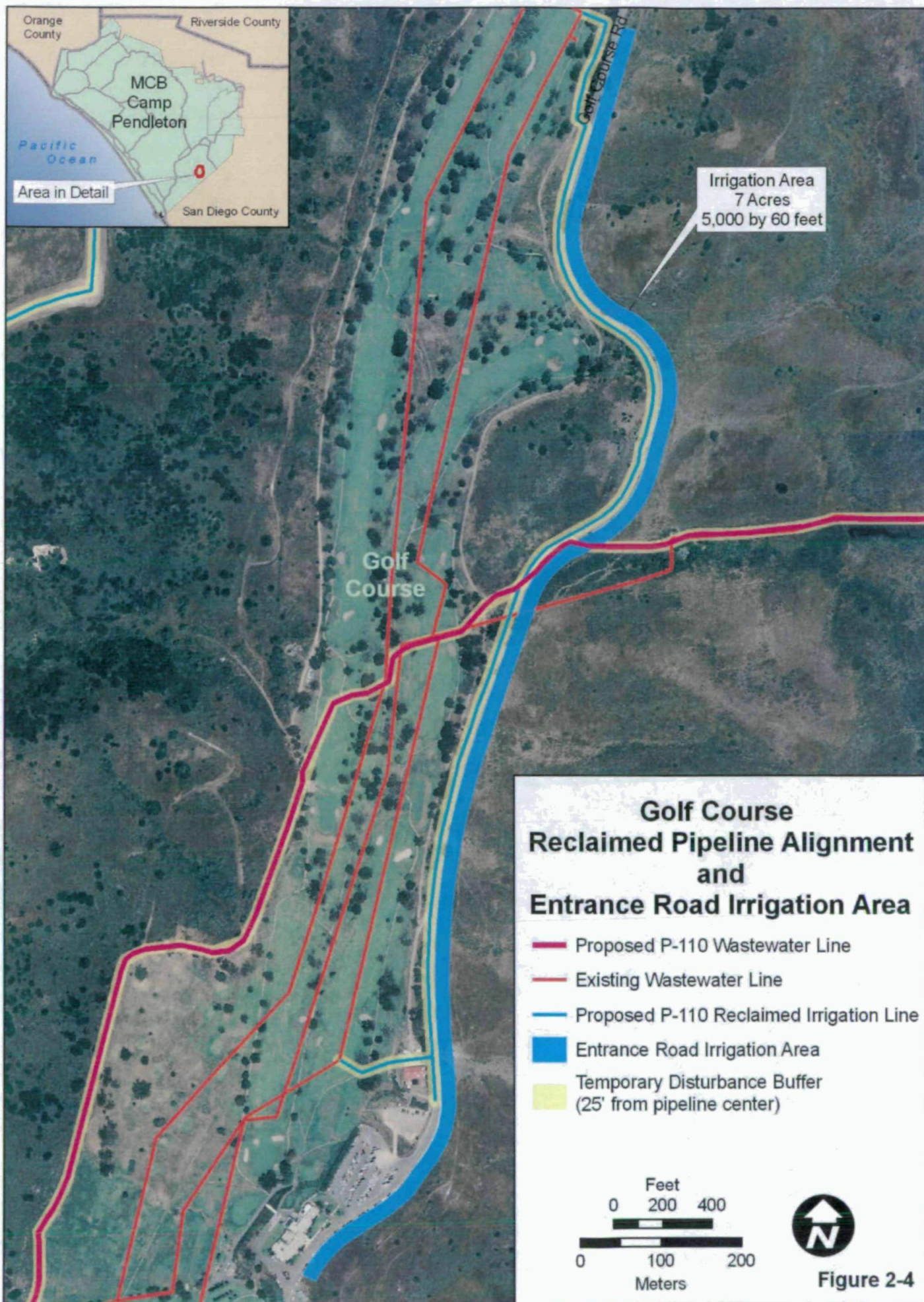
0 200 400

Feet

0 100 200

Meters

Figure 2-3



Horse Lake Pump Station and Power Poles

- Proposed P-110 Wastewater Line
- Existing Wastewater Line
- City of Fallbrook Wastewater Line
- Proposed P-110 Reclaimed Irrigation Line
- Temporary Construction Area
- Pump Station Site
- Temporary Disturbance Buffer
(25' from pipeline center,
50' for pipeline into lake)

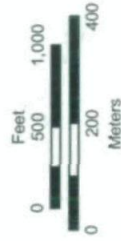
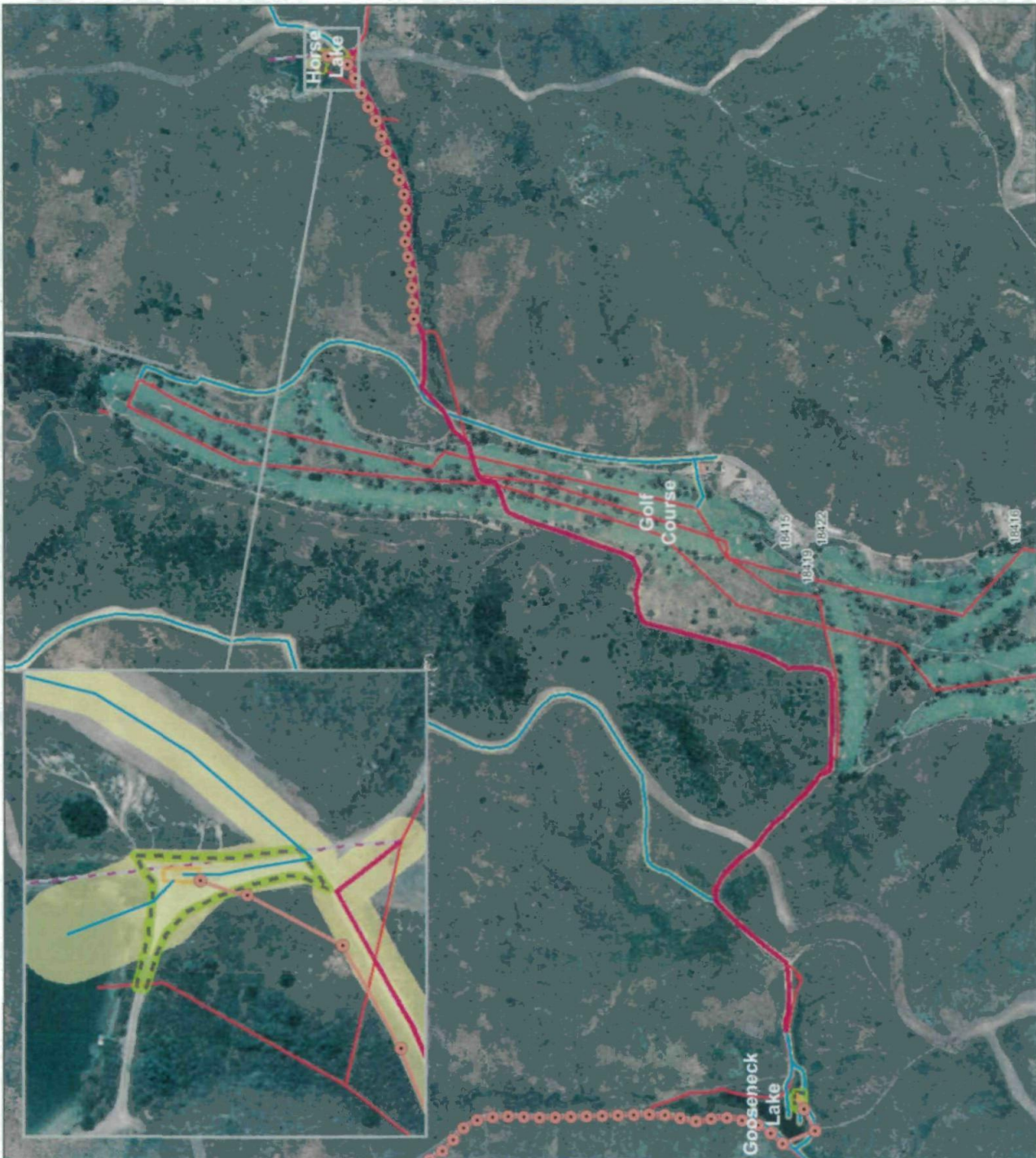


Figure 2-5



Horse Pasture Pipeline Alignment with STP-2 Power Pole Locations and Wastewater Pipeline Replacement

- Proposed P-110 Reclaimed Irrigation Line
- Proposed P-110 Wastewater Line
- Existing Power Line
- Proposed Power Line
- Proposed Power Poles
- Intermittent Stream
- Temporary Construction Area
- Pump Station Site
- Temporary Disturbance Buffer (25' from pipeline center)
- Existing Conveyance Lines
- Force Main
- 527B Force Main
- Main Line
- Fallbrook Outfall Main Line

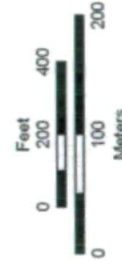
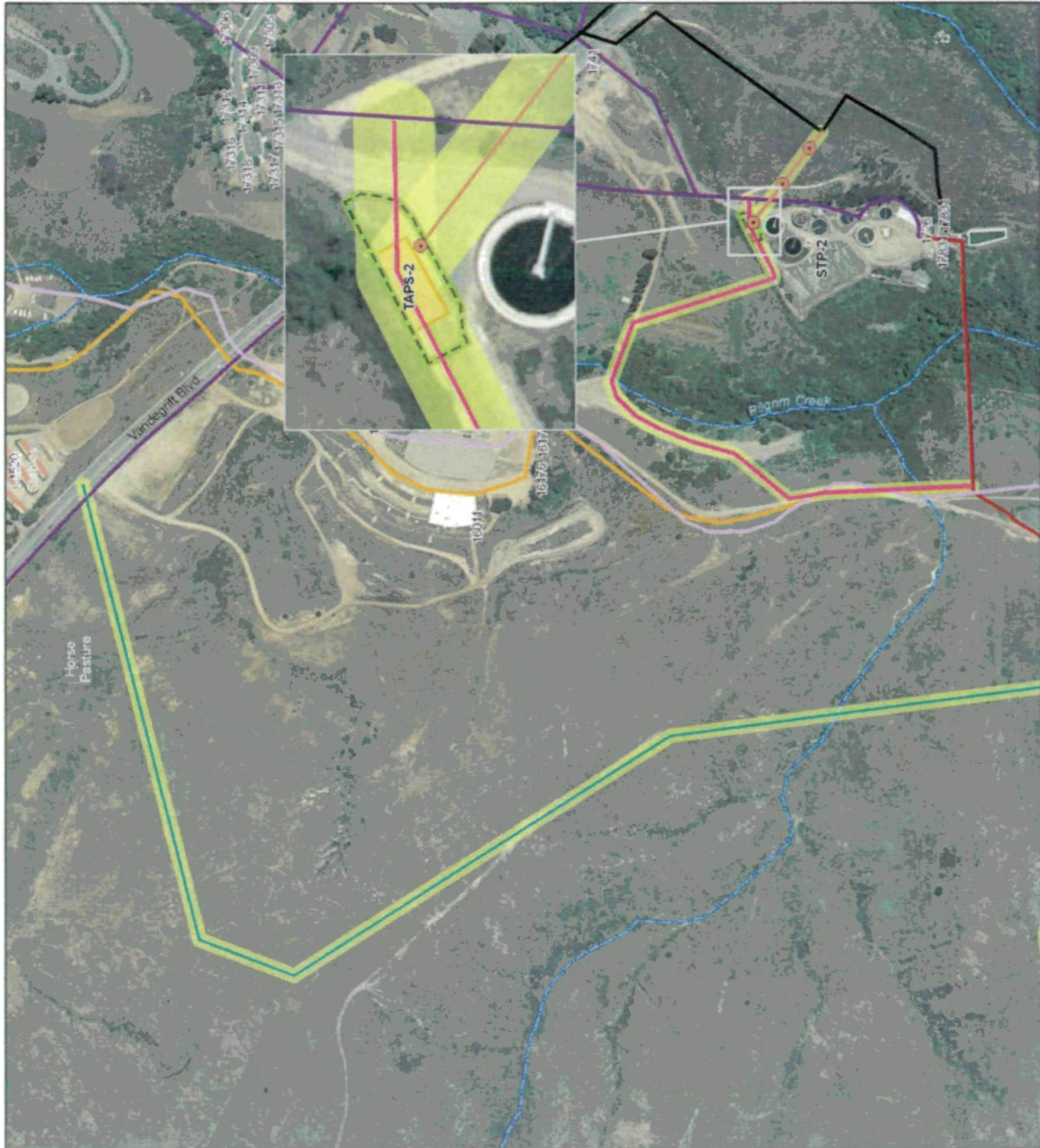


Figure 2-6





STP 3 New Tributary Area Pump Station

Legend

- Existing Wastewater Line
- Temporary Construction Area
- Pump Station Site

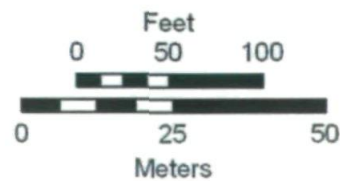


Figure 2-7



Stuart Mesa Housing and Farmer's Pond Reuse Lines, Pump Station, Power Poles, Tank, and Irrigation Lines

- Proposed P110 Reclaimed Irrigation Line
- Existing Wastewater Line
- Pump Station Site
- Temporary Construction Area
- Proposed Power Poles
- Existing Power Line
- Proposed Power Line
- Temporary Disturbance Buffer (25' from pipeline center)

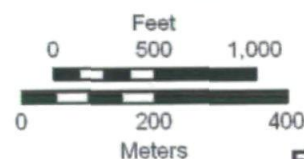
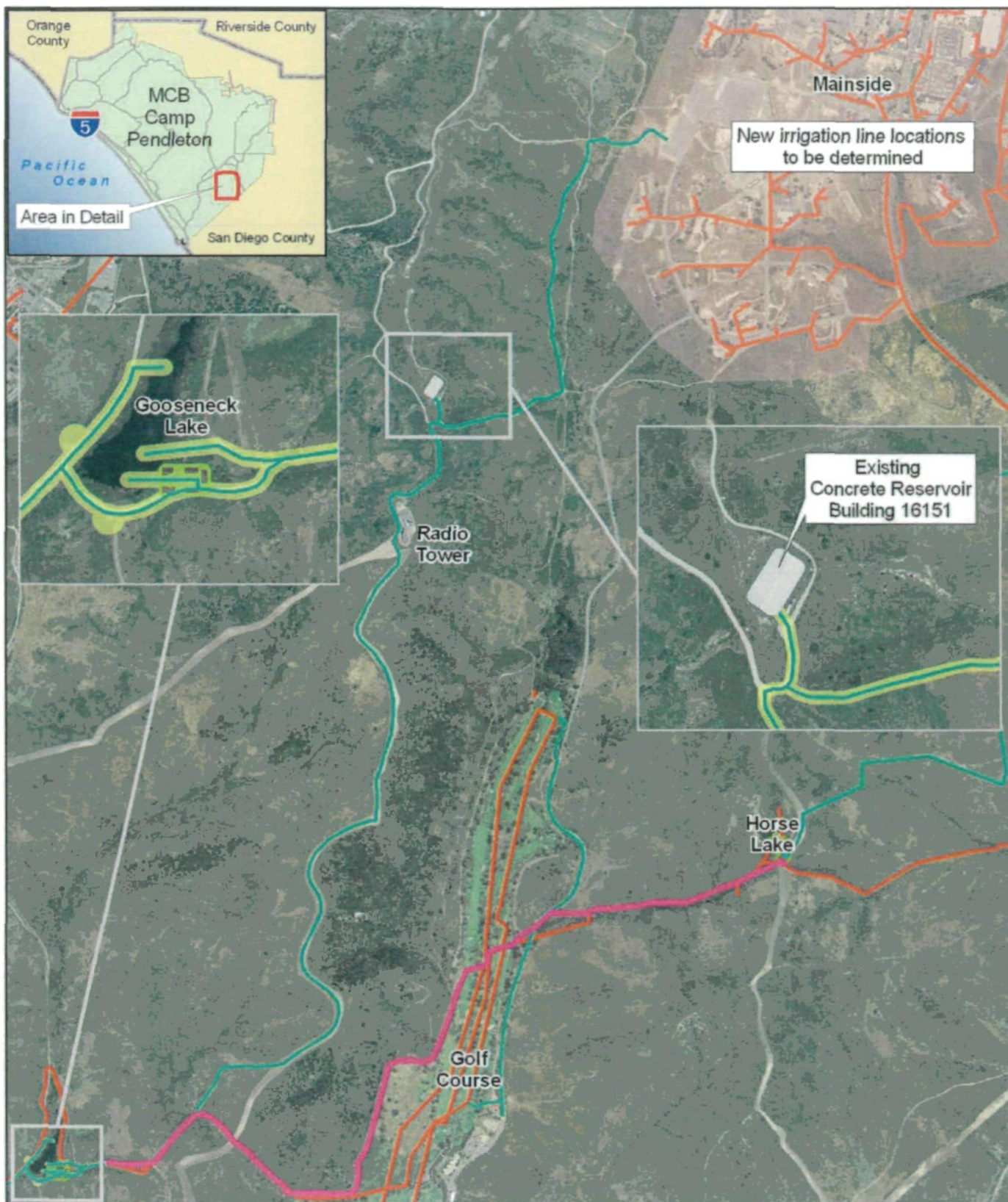


Figure 2-8



Reclaimed Water Supply to Mainside

- Proposed P-110 Wastewater Line
- Proposed P-110 Reclaimed Irrigation Line
- Existing Wastewater Line
- Temporary Construction Area
- Pump Station Site
- Temporary Disturbance Buffer
(25' from pipeline center)

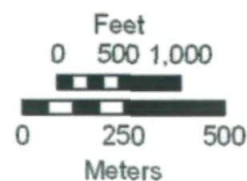


Figure 2-9

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the USMC would not implement those additions and modifications to the MCB Camp Pendleton wastewater conveyance pipeline system and associated facilities discussed herein. Compliance with regulatory requirements would not be achieved and the increase in reuse of reclaimed water would not be realized. Although the No Action Alternative is not considered a reasonable alternative because it does not meet the purpose of and need for the Proposed Action as required under CEQ regulations (40 CFR 1502.14[d]), it does provide a measure of the baseline conditions against which the impacts of the Proposed Action can be compared. The No Action Alternative is carried forward for analysis. In this Supplemental EA, the No Action Alternative represents the baseline conditions described in Chapter 3, Affected Environment.

2.3 SPECIAL CONSERVATION MEASURES

Implementation of the Proposed Action would include the incorporation of the following Special Conservation Measures (SCMs) as part of project development to avoid or minimize any potential impacts:

1. Best management practices (BMPs) for erosion, sediment, and pollution controls to protect soil and surface waters would be incorporated into a Storm Water Pollution Prevention Plan (SWPPP) prepared by the construction contractor and submitted for review and approval to the Assistant Chief of Staff, Environmental Security (AC/S, ES) Land Management Branch (LMB), prior to submittal as required to the Regional Water Quality Control Board (RWQCB).
2. All disturbed soils would be immediately stabilized following the completion of work. Native habitats which were disturbed would be re-planted with native grass and shrub species that are consistent with pre-existing vegetation. A habitat restoration and weed monitoring plan would be created that includes an action treatment plan (to be funded annually for 10 years) for any weed increases, density or area, or if new noxious weeds get established and the horses do not keep them under control. The action treatment plan would be used to return the site to pre-project plant composition at a minimum. AC/S ES LMB would review and approve the plan. Prior to approval of the final design, the contractor would obtain AC/S ES LMB approval of seed mixes, container plants, planting/seeding, erosion control material, and monitoring methods proposed for use in revegetation. AC/S ES LMB would specify minimum performance and success that must be met before the obligation is released. Noxious weeds (as listed by the California Invasive Plant Council) would be removed by hand weeding or herbicide application as needed in disturbed areas throughout the first year of revegetation.
3. Grading during the rainy season (1 November to 1 May) would be minimized. Where it is impractical to avoid grading during the rainy season, erosion and sedimentation BMPs would be installed and maintained until work is completed and graded areas have been re-contoured, physically stabilized, and planted.
4. Dust in or adjacent to riparian areas would be minimized by lightly watering areas of exposed dirt when conditions warrant.
5. Concreting operations would be conducted to avoid discharge to streams unless specifically authorized in a CWA discharge permit.

6. All mechanized clearing and grading, vehicle traffic, equipment staging, and the deposition of soil would be confined to the footprints analyzed in this Supplemental EA or to other disturbed or developed land. Construction site boundaries would be clearly delineated by flagging, stakes, or survey lath.
7. Heavy equipment and construction activities would be restricted to existing roads and disturbed areas to the maximum extent practicable. Staging areas would be located in disturbed habitats and would be delineated on the grading plans. Vehicle operation and laydown areas would be defined by staking and flagging between stakes to prevent operations outside these areas.
8. Fueling of equipment would be allowed only in designated areas specified on the construction maps and would not occur within 100 ft (30 m) of drainages. Emergency provisions would be in place at all flowing stream crossings before the onset of construction to prevent accidental spills from contaminating downstream habitats.
9. Erosion and sedimentation controls would be maintained during construction and as needed thereafter to ensure stabilization of the site. These controls are presented in the Environmental Protection Plan prepared by the design-build contractor and include, but are not limited to, silt fences, straw waffles, silt screens, gravel/sand bags, and fiber rolls. Erosion control measures would also include establishing a vegetative cover (seeding with appropriate native plant species).
10. No discharge of excavated or fill material to a CWA Section 404 water of the U.S. shall occur except as authorized by a permit from the U.S. Army Corps of Engineers (USACE).
11. Final designs for construction would minimize the removal of coastal sage scrub (CSS) and disturbed areas (D) CSS that could support coastal California gnatcatcher (CAGN). Any unavoidable removal or temporary disturbance of CSS would be recorded and compensated in accordance with the TTP EIS BO (United States Fish and Wildlife Services [USFWS] 2004). Permanent impacts to high quality CSS and coastal sage scrub, *Baccharis pilularis* dominated, (CSS[P]) would be compensated by habitat creation at old STP sites 1, 2, and 8 at a 2:1 ratio. Permanent impacts to D-CSS and D-CSS(P) would be restored at a ratio of 1:1 and temporary impacts restored on-site and outlined in a CSS Restoration Plan in place prior to initiation of restoration (USFWS 2004).
12. Final designs for construction would minimize the removal of riparian habitat that could support listed species. Any unavoidable removal or temporary disturbance of riparian habitat would be compensated in accordance with the TTP EIS Biological Opinion (BO) (USFWS 2004) and the MCB Camp Pendleton Riparian BO (1-6-95-F-02). All riparian areas temporarily disturbed by construction activities would include native vegetation restoration at the sites impacted and be treated for a minimum of 3 years post-construction to control the establishment of exotic vegetation within the cleared or otherwise disturbed area (USFWS 2004).
13. Clearing of CSS or D-CSS vegetation would take place only outside of the CAGN breeding season. The breeding season for CAGN is from 15 February to 15 August (USFWS 2004).
14. Clearing of woody riparian vegetation would take place only outside of the least Bell's vireo (LBV) and southwestern willow flycatcher (SWF) breeding season. The breeding season for LBV and SWF is from 15 March to 31 August (USFWS 2004).

15. Whenever feasible, construction activities in or within 500 ft (152 m) of CSS or D-CSS habitats would occur outside of the breeding season for the CAGN (USFWS 2004).
16. Whenever feasible, construction activities in or within 500 ft (152 m) of woody riparian habitats would occur outside of the breeding season for the LBV and SWF (USFWS 2004).
17. If breeding season avoidance is not practicable, then the following additional measures would be applied for CAGN, LBV, and SWF:
 - There would be a pre-construction survey for CAGN, LBV, and SWF and active nests in all suitable habitat within 500 ft (152 m) of the proposed construction area. Pre-construction surveys would be coordinated with any other ongoing surveys for CAGN, LBV, and SWF to minimize disturbance to nesting CAGN, LBV, and SWF and avoid redundant survey effort.
 - If an active CAGN, LBV, or SWF nest occurs between 200 ft (61 m) and 500 ft (152 m) of the proposed construction corridor, all work would be completed within a continuous 96-hour period unless the Marine Corps and Carlsbad Fish and Wildlife Office (CFWO) mutually agree that disturbance is not likely.
 - If an active CAGN, LBV, or SWF nest occurs within 200 ft (61 m) of the proposed construction corridor, work in the area would be delayed until the nest fails or until at least 10 days after young fledge from the nest, unless the Marine Corps and CFWO mutually agree that disturbance is not likely. A qualified CAGN, LBV, or SWF biologist would monitor nest progress and construction activity to minimize potential construction-related disturbances (USFWS 2004).
18. Trenching and other ground-disturbing activities in potential arroyo toad (AT) habitat (defined as 3000 ft [914 m] from any individual toad observed previously) would take place outside the toad's breeding/active season which is defined as 1 February to 30 September. If the seasonal avoidance is not practicable, then the avoidance and minimization measures defined in the TTP EIS BO would be followed along with those measures detailed in the Toad Avoidance and Minimization Plan (USFWS 2004; NAVFAC SW 2006b).
19. Preconstruction surveys would be conducted within areas with suitable soils and habitat for TLB during the appropriate flowering period (May-June) and would follow the most current AC/S ES LMB TLB Inventory Guidelines. Avoidance and minimization measures specified in the TTP EIS BO (USFWS 2004) would be implemented as warranted.
20. A qualified biologist would monitor all construction activities in and adjacent to CSS and riparian habitats to ensure compliance with the above avoidance, minimization, and compensation measures in the above SCMS and would keep the project engineer informed of construction activities that may threaten significant biological resources (USFWS 2004).
21. A contractor education program would be conducted by a qualified biologist with oversight by MCB Camp Pendleton AC/S ES personnel. It would be conducted during all project phases and cover the potential presence of listed species, the requirements and boundaries of the project; the importance of complying with avoidance, minimization, and compensation measures; and problem reporting and resolution methods. MCB Camp Pendleton would ensure the placement of signs indicating the necessity for all activities to be strictly confined to the project site (USFWS 2004).

22. The population of TLB that is approximately 500 ft (152 m) north of the reclaimed water line proposed for installation in the Horse Pasture (Figure 2-6) would have orange construction fence erected around its periphery to ensure that construction vehicles do not drive on, or otherwise impact, the population. Orange fencing would also be installed immediately to the north of the footprint of the pipeline to avoid potential impacts to TLB on the periphery of the population. This same protocol would be followed for any other TLB found during subsequent survey efforts. In the design of the use of reclaimed water (secondary lines coming from the main water pipe) this *Brodiaea* population in the Horse Pasture is not to be watered directly, via gravity percolation flow or via surface flow from upslope watered areas.
23. Since the duration of the temporary disturbance caused to the riparian area in Figure 2-1 would be less than one breeding season, no compensatory mitigation is required.
24. Consistent with the MCB Camp Pendleton Riparian BO (1-6-95-F-02), temporarily disturbed areas of riparian vegetation would be weeded for at least three years after the cessation of the disturbance.
25. In the construction of the Lemon Grove Pump Station Site (Figure 2-2), only previously disturbed surfaces would be used as laydown or stockpiling areas due to the presence of vernal pools close to the road. Stockpiles must be covered, or surrounded by silt fencing and/or straw wattles as necessary to stop erosion from them flowing to adjacent vernal pool areas.
26. The Stuart Mesa Housing pump station and holding tank site in Figure 2-8 would be kept within the previously disturbed road/burrow ditch area and would avoid the nearby wetland area. The removal or disturbance of vegetation on the sides of the road during pump station/holding tank construction would be minimized.
27. Regarding IR Sites 22/23, potentially contaminated groundwater encountered during construction activities would be tested and handled in accordance with the base direction as follows: Water would be collected into a Baker Tank and the Facilities Maintenance Department (FMD), Water/Wastewater Division would be notified. The FMD would work with AC/S ES to determine the appropriate sampling requirements and arrange for the laboratory analysis. The Water/Wastewater Division would determine acceptability of the water for discharge into the sanitary sewer based on the results of the laboratory analysis, volume, and accessibility to a sewer manhole. In addition, appropriate health and safety measures would be followed and all requirements of EM385-1-1 and 29 CFR 1910.120 would be met.
28. Regarding IR Site 30, the design-build contractor would install a force main along Santa Margarita Road and has already prepared a Soil Management Plan (SMP) for that action which describes how lead-contaminated soils in the IR Site 30 area would be handled and disposed. The procedures described in the SMP would be followed for installation of the reclaimed pipeline. All requirements of EM385-1-1 and 29 CFR 1910.120 would be met.

2.4 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The following resource areas are analyzed in this Supplemental EA: Biological Resources, Cultural Resources, Air Quality, and Utilities. Table 2-2 provides a summary of environmental consequences, by resource area, for the Proposed Action and the No Action Alternative. For a detailed description and analysis, refer to Chapter 3, *Affected Environment and Environmental Consequences*. As shown in Table

2-2, implementation of the Proposed Action or the No Action Alternative would not result in significant impacts to any resource area. The No Action Alternative would, however, forego the opportunity to achieve regulatory compliance at MCB Camp Pendleton. Therefore, the No Action Alternative is not considered a reasonable alternative because it does not meet the purpose of and need for the Proposed Action.

Table 2-2. Summary of Environmental Consequences

<i>Resource Area</i>	<i>Proposed Action</i>	<i>No Action Alternative</i>
Biological Resources	•	•
Cultural Resources	•	•
Air Quality	•	•
Utilities	•	•

•: indicates that no significant impacts would occur

2.5 PREFERRED ALTERNATIVE

Based on the analysis presented in this Supplemental EA, the USMC has identified the Proposed Action as the preferred alternative.

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CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the conditions of the existing environment and environmental consequences in and around MCB Camp Pendleton for resources potentially affected by implementation of the Proposed Action discussed in Chapter 2. Information presented in this chapter represents baseline conditions against which the Proposed Action is evaluated to identify potential impacts.

3.1 RESOURCES CONSIDERED BUT ELIMINATED

In compliance with NEPA, CEQ regulations, and DON and USMC procedures for implementing NEPA, the description of the affected environment focuses only on those resources potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of impact. Accordingly, the discussion of the affected environment and associated environmental consequences focuses on biological resources, cultural resources, air quality, and utilities within the defined ROI for each resource. Conversely, the following resource areas were not carried forward for analysis in this Supplemental EA, as potential impacts were considered to be negligible or non-existent:

Aesthetics. Implementation of the Proposed Action would have a negligible effect on aesthetics since the Proposed Action would occur in areas where the visual environment is already characteristic of a military installation, and the construction of pipelines and associated facilities would be consistent with the BEAP and current land use at MCB Camp Pendleton. Minor landscape modifications would occur during construction activities; however, disturbed areas would be revegetated as appropriate and allowed to return to their natural state. Therefore, impacts related to aesthetics would not occur.

Geology, Soils, and Seismicity. Construction activities would be completed in compliance with the geotechnical recommendations incorporated into project design and a project-specific General Construction Permit. As part of the permit, a SWPPP would incorporate erosion control measures. Provisions for both temporary and permanent erosion and sediment controls would be implemented in accordance with the SWPPP prepared and designed specifically for the construction sites. Operation of the reuse sites would create soil salinity levels below those generally considered harmful for most types of plants. Project components would be constructed in compliance with the seismic design criteria identified in the Uniform Building Code, the Naval Facilities Engineering Command Southwest (NAVFAC SW) Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California. Therefore, impacts related to geology, soils, and seismicity would not occur.

Hazardous Materials/Wastes. Construction activities would be conducted in compliance with all federal, state, and MCB Camp Pendleton requirements for use, storage, and disposal of hazardous materials/hazardous wastes. Contractors would be required to prepare and implement hazardous materials/hazardous wastes management plans that include contingencies for accidental releases and construction equipment would be equipped with spill containment kits. Construction equipment would be re-supplied with fuel from fuel trucks at the contractors' lay down area only. The fuel trucks would meet the requirements of CFR Title 49 Subtitle B (CFR 2006) and be equipped with absorbent spill clean-up materials. The lay-down area would be specified on the construction map and would not be placed within 100 ft (30 m) of drainages. Emergency provisions would be in place at all crossings before the onset of construction to prevent accidental spills from contaminating downstream habitats. All construction

vehicle and equipment maintenance would be avoided in the construction area, except in the event of an emergency (e.g., equipment breakdown in the field). Only minimal quantities of lubricants and other vehicle and equipment fluids would be stored in covered storage areas within the construction lay-down areas. Hazardous materials and hazardous wastes associated with operation of the proposed facilities would be managed in accordance with all federal, state, and MCB Camp Pendleton requirements. IR sites 22, 23, and 30 would be addressed in accordance with SCMs 27 and 28 presented in section 2.3 of this Supplemental EA. Therefore, impacts related to hazardous materials/wastes would not occur.

Land Use. Construction activities related to the placement of pipelines may temporarily disrupt access to streets adjacent to pipelines or training areas; however, this disruption would be minimized by the short-term nature of the construction process and efforts to maintain access along the roadways through the use of signage and alternative routes, if appropriate. Construction or operation of pump stations or reuse sites would not result in any changes to existing land use. Therefore, impacts related to land use would not occur.

Noise. Construction activities would require the use of heavy equipment for site preparation and development that would result in temporarily increased noise levels within the immediate area; however, noise levels would be typical of standard construction activities and would cease upon completion of proposed construction activities. Operation of the proposed pump stations would generate instantaneous noise; however, due to the attenuation of noise with distance from the noise source, noise levels from both construction and operation of the Proposed Action would be reduced to ambient levels before reaching the nearest sensitive noise receptor. Therefore, impacts related to noise would not occur.

Public Health and Safety, including Environmental Health and Safety Risks to Children. During construction activities, measures such as fencing, signs, and security would be implemented to minimize safety risks and unauthorized access. To ensure that no cross-connection contamination occurs between recycled and potable water, the recycled water systems would be shut down annually and inspected. Pipelines transporting reclaimed water to reuse areas would be color-coded purple to facilitate identification of each pipeline in accordance with California DHS guidelines. In addition, warning signs stating that water is not for drinking would be posted. The Proposed Action would not result in disproportionate environmental health risks or safety risks to children. Therefore, impacts related to environmental health and safety would not occur.

Socioeconomics and Environmental Justice. Construction of this project would not result in the displacement of people or businesses and would not change the economic character or stability of the surroundings. Contractors would be drawn from the neighboring communities and project facilities would be staffed predominantly by personnel already on MCB Camp Pendleton. The Proposed Action would not result in the disproportionate impacts to minority and low-income populations. Therefore, impacts related to socioeconomics and environmental justice would not occur.

Transportation and Circulation. Projected increases in traffic volumes due to implementation of the Proposed Action would constitute a negligible portion of the total existing traffic volumes at the Base. Operation of the pipelines and associated facilities would be limited to vehicle traffic associated with periodic maintenance, which would be intermittent and would represent a negligible increase in traffic on the Base. Construction trips would be distributed throughout each day and would affect any individual route or intersection only intermittently during any given phase of construction. Therefore, impacts related to transportation and circulation would not occur.

Water Resources. Construction activities would temporarily increase localized erosion rates, which could lead to minor temporary increases in sediment discharge rates. However, appropriate BMPs would be

implemented to reduce the potential for water quality degradation. In addition, as noted above, a site-specific SWPPP would be prepared to facilitate minimization of stormwater discharge intensities and erosion. Analysis contained in the TTP EIS with respect to impacts to water resources due to operation of reuse areas is applicable to the Proposed Action; reclaimed water would be applied to the reuse areas at a rate significantly lower than the infiltration capacity of the receiving soils to ensure that runoff would not occur. Therefore, impacts related to water resources would not occur.

3.2 BIOLOGICAL RESOURCES

3.2.1 Definition of Resource

This section describes native and naturalized plants and animals, the habitats in which they occur, and areas that may be directly or indirectly affected by the Proposed Action. For purposes of this Supplemental EA, these resources are divided into three major categories: 1) plant communities and aquatic habitats, including existing terrestrial plant communities, waters of the U.S., and wetlands; 2) wildlife, including migratory birds; and 3) special-status species, including federally listed or proposed species and other special concern species.

3.2.2 Existing Conditions

The description of existing conditions is based on the 2004 TTP EIS (NAVFAC SW 2004a) and references therein, natural resources data contained in the MCB Camp Pendleton Geographic Information System (GIS) as of 2006 (USMC 2006), data gathered and observations made in conjunction with the monitoring of TTP construction (NAVFAC SW 2006), and project-specific supplemental field surveys conducted in 2006. Project-specific mapping efforts or surveys were conducted for vegetation, wetlands, and other waters of the U.S. in the project areas which were not included in the 2004 TTP EIS (NAVFAC SW 2004a). Surveys were conducted by TEC biologists on October 13 and 20 and November 22 and 30, 2006 and January 10, 2007. As stated in Chapter 2 of this Supplemental EA, the project components include pipeline footprints with a 50 ft (15 m) buffer (25 ft [8 m] from center line), pump station footprints with a construction buffer, and power pole alignment footprints with a 50 ft (15 m) corridor (25 ft [8 m] from center line). For a detailed description of each project component, refer to Table 2-1.

3.2.2.1 Plant Communities and Aquatic Habitats

Plant communities and aquatic habitats were mapped in the TTP EIS based on the system of Holland (1986) as modified for the San Diego region by Oberbauer (1996). For this Supplemental EA, the majority of the mapping has been updated based on more current field observations and cross-referencing to the plant community series of Sawyer and Keeler-Wolf (1997). The mapping for the golf course irrigation area is based on the 2003 MCB Camp Pendleton base wide vegetation GIS layer (USMC 2006). The new project area for the proposed pipelines, pump stations, and power poles contains native and non-native vegetation, with approximately fifty percent comprising developed and disturbed areas. The descriptions of vegetation types presented below are primarily from previous MCB Camp Pendleton studies and documentation (USMC 1997, 2001) and San Diego Association of Governments (SANDAG 2002), with additional observations from vegetation surveys conducted specifically for this Supplemental EA. The following is a description of the plant communities and aquatic habitats recognized in the proposed project area:

- *Developed* (DEV) areas compromise the majority of the proposed project area and include dirt roads, buildings, parking lots, pavement, and mowed or cultivated landscaped vegetation. Areas

within STP 2, STP 3, and the dirt access roads where the proposed conveyance lines, pump stations, and power poles would be installed are DEV

- *Eucalyptus woodlands* (EUC) are dominated by naturalized blue and/or red gum trees (*Eucalyptus* spp.). EUC are found along the access road to Stuart Mesa Housing. *Non-native woodland* (NNW) is dominated by naturalized blue and/or red gum trees and other non-native trees and is found along the east side of the golf course.
- *Non-native grasslands* (NNG; California annual grassland series), are dominated by one or more of the following exotic species: ripgut (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), wild oats (*Avena* spp.), wild barley (*Hordeum* spp.), Italian ryegrass (*Lolium multiflorum*), filaree (*Erodium* spp.), and soft chess (*Bromus hordeaceus*). NNG occur east of Vandergrift Blvd, along the access road from Gooseneck Lake to Mainside, along the Golf Course Entrance Road, within the Horse Pasture, and within the power pole corridor at STP 2.
- *Mixed grasslands* (MG) are dominated by non-native grasses with patches of native bunch grasses (*Nasella* spp.). MG occurs along the access road from Mainside south toward the golf course.
- *Native grasslands* (NG) consist of perennial, tussock-forming native grasses (*Nasella* spp.). NG occurs within the golf course irrigation area.
- *Disturbed* (DIST) (ruderal) habitat is where past or present physical disturbance is prevalent and where more than 50 percent of the ground is bare or covered by non-native invasive plants. Characteristic invasive plant species occurring on disturbed sites in the study area include black mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), red-stemmed filaree (*Erodium cicutarium*), Russian thistle (*Salsola tragus*), tamarisk (*Tamarix* spp.), and Bermuda grass (*Cynodon dactylon*). DIST, fennel and black mustard dominated vegetation, dominates the west side of access road proposed for the power poles from Gooseneck Lake to Pueblitos Canyon. The firebreak from the radio tower to Gooseneck Lake is DIST. DIST vegetation is present at Lemon Grove Ponds and along the access road on the west side of the SRTTP. Approximately half the vegetation along the access road from the golf course to Horse Lake is DIST.
- *Cismontane alkali marsh* (CAM; pickleweed series) is an association of halophytic (salt-tolerant) herbs and subshrubs that forms a moderate to dense cover to a height of 3 ft (1 m). These areas are on saline soils derived from old salt marsh sediments and maintained by evaporation and poor drainage. The most common species observed in the study are glasswort (*Salicornia subterminalis*), pickleweed (*Salicornia virginica*), alkali heath (*Frankenia salina*), and alkali weed (*Cressa truxillensis*). *Disturbed CAM* (D-CAM) has clear evidence of physical disturbance of the substrate. D-CAM occurs in small areas along the access road to Stuart Mesa Housing.
- *Southern arroyo willow riparian forest* (SWRF; mixed willow series) occurs in seasonally flooded areas along rivers and streams. The forest is a tall, open, broad-leaved winter-deciduous forest. In the study area it is dominated by arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and black willow (*Salix gooddingii*). The understory is usually composed of mulefat (*Baccharis salicifolia*) or shrubby willows. This is the dominant vegetation community along Pilgrim Creek. Small patches of SWRF occur along the Twin Ponds, Gooseneck Lake, and the access road from the golf course to Horse Lake.

- *Coastal sage scrub (Diegan)* (CSS; California sagebrush series) is characterized by low-growing, shrubs and (soft-woody) subshrubs and occurs at low elevations on relatively dry, open sites near the coast. The dominant species grow actively in the rainy season and are drought-deciduous. CSS is dominated by California sagebrush (*Artemisia californica*), but can include varying amounts of flat-topped buckwheat (*Eriogonum fasciculatum* ssp. *fasciculatum*), laurel sumac (*Malosma laurina*), sage (*Salvia* spp.), and coastal goldenbush (*Isocoma menziesii* var. *vernonioides*). Native perennial grasses and forbs commonly occur in the understory. *Disturbed CSS (D-CSS)* has a ground cover of 20 to 50 percent of woody subshrubs and significant percent cover of bare ground and/or non-native herbs. Common non-native species found in disturbed or open sage scrub include wild oats, Russian thistle (*Salsola tragus*), bromes (*Bromus* spp.), and tocalote (*Centaurea melitensis*). *CSS(P)* (coyote brush series) is a subtype of CSS dominated by coyote brush (*Baccharis pilularis*). This vegetation type most often occurs in disturbed floodplains and on mesic slopes above drainages and wetlands. CAGN occupied CSS is found northeast of the intersection of Vandegrift Blvd. and Ash Road, along the east side of the golf course, along the access roads to Stuart Mesa Housing and Farmer's pond, and along the access road from Gooseneck Lake to Mainside. Small patches of CAGN occupied D-CSS occur in the vicinity of the SRTTP, STP 2, within the horse pasture, and from the golf course to Horse Lake.
- *Southern willow scrub (SWS; arroyo willow series)* is dense, winter-deciduous vegetation with greater than 60 percent ground cover found along the major rivers of Southern California. In the study area, it is typically dominated by arroyo willow and may include several other willow species (e.g., red willow and sand bar willow [*Salix exigua*]) and mulefat. Associated understory herbaceous species include poison oak (*Toxicodendron diversilobum*), western ragweed (*Ambrosia psilostachya*), and non-native species such as giant reed (*Arundo donax*) and poison hemlock (*Conium maculatum*). SWS is also found along the access road from the golf course to Horse Lake and surrounding Gooseneck Lake.
- *Coastal and valley freshwater marsh (CVFM; bulrush-cattail series)* is typically dominated by perennial, emergent monocots, some of which achieve a height 13-15 ft (4-5 m) tall and often consist of uniform stands with closed canopies. This community occurs in wetlands that are permanently flooded by standing freshwater lacking a significant current. Prolonged saturation of such areas permits the accumulation of deep, peaty soils. Characteristic species include bulrushes (*Scirpus* spp.) and cattail (*Typha latifolia*). Small patches of CVFM are scattered in low areas throughout the study area, specifically along the access road to the agricultural fields, on the perimeter of Twin Ponds near STP 13, and on the perimeter of Gooseneck Lake.
- *Maritime succulent scrub (MSS; no equivalent series)* is a low scrub community dominated by drought-deciduous succulent plant species. It occurs on thin rocky or sandy soil, often on steep slopes of headlands and bluffs. Ground is more or less bare between plants. MSS in the study area was dominated by pincushion cactus (*Mammillaria dioica*) and ladies fingers (*Dudleya edulis*). MSS is found on the east side of the access road to Farmer's pond.
- *Open Water* (no equivalent series) areas include the waters and substrates of unvegetated bodies of water, including ponds and streambeds.

The CWA jurisdictional status of drainages and wetlands which were not previously evaluated in the TTP EIS was investigated during surveys conducted for this Supplemental EA. Results are detailed in the Delineation of Wetlands and Other Waters of the U.S. (Appendix A). Jurisdictional wetlands, and non-wetland waters of the U.S. (WUS) were delineated, along with non-jurisdictional features. One WUS,

one jurisdictional wetland, two isolated non-jurisdictional drainages, and one non-jurisdictional wetland were delineated. All other drainage features and wetlands within the project area were identified and delineated during surveys for the TTP EIS (NAVFAC SW 2004a).

Figures 3-1 – 3-9c show the distribution of plant communities and aquatic habitats, as well as special status species (see below) found within the proposed project area. Table 3.2-1 lists the plant communities, aquatic habitats, and special status species found within each project component.

SRTTP to Bluffs: The pipeline from SRTTP to the bluffs would cross a small waters of the U.S. and a wetland on the west side of Vandegrift Blvd (Figure 3-1) as determined in the Delineation of Wetlands and Other Waters of the U.S. (Appendix A).

Mainside to Gooseneck Lake: The two drainages (Figure 3-9a) on the edge of the access road south of Mainside drain into the pond at the northern end of the Golf Course, an isolated water body as determined in the Delineation of Wetlands and Other Waters of the U.S. (Appendix A).

Stuart Mesa Housing: The non-jurisdictional wetland along the access road from Stuart Mesa Road to Stuart Mesa Housing is east of the project footprint as determined in the Delineation of Wetlands and Other Waters of the U.S. (Appendix A).

All other drainage features and wetlands within the project area were delineated during surveys for the TTP EIS (NAVFAC SW 2004a).

SRTTP to Stuart Mesa Housing: The pipeline along the access road from Lemon Grove Road to Stuart Mesa is adjacent to a jurisdictional wetland west of Twin Ponds (Figure 3-2, Figure B-2W of the TTP EIS).

Gooseneck Lake Piping, Pump Station and Power Poles: Gooseneck Lake is a non-jurisdictional water body (USACOE 2004) and is surrounded by wetlands (Figure 3-3a and 3-3b).

Golf Course to Horse Lake: A jurisdictional drainage runs along the south side of the dirt access road from the golf course to Horse Lake (Figure 3-5, Figure B-12W of TTP EIS).

Horse Pasture to Vandegrift: The pipeline through the horse pasture (Figure 3-6a) crosses perpendicular to a WUS. (Figure 3-6a).

STP 2 to Horse Pasture: The pipeline from STP2 to the Horse Pasture crosses a WUS and a wetland (Figure 3-6b). The construction of the pipeline from STP 2 to the horse pasture would cross Pilgrim Creek within the existing dirt access road (Figure 3-6b).

**Table 3.2-1. Plant Communities, Aquatic Habitats, and Special-Status Species
within the Proposed Project Components**

<i>Project Component</i>	<i>Plant Communities and Aquatic Habitats within the Proposed Project Area⁽¹⁾</i>	<i>Special Status Species Potentially within 500 ft (152 m) of the Proposed Project Area</i>
Pipeline from SRTTP to the Bluffs (Figure 3-1)	DEV, NNG, D-CSS, SWRF, WUS, WET, DIST	CAGN, LBV, SWF
Lemon Grove Reclaimed Pump Station (Figure 3-2)	D-CSS	NONE
Lemon Grove Connection to TTP Headworks (Figure 3-2)	DEV, DIST, NNG, EUC, D-CSS, CVFM, WET	CAGN
Gooseneck Lake Power Poles (Figure 3-3a)	DIST, DEV, NNG, D-CSS, NJ WET	LBV
Gooseneck Lake Pump Station (Figure 3-3b)	DIST, DEV, SWRF, NJ WET	LBV
Golf Course Reclaimed Pipeline Alignment (Figure 3-4)	DEV, DIST, NNG, NG, CSS, D-CSS (P),	CAGN, LBV
Golf Course Entrance Road Irrigation Area (Figure 3-4)	DIST, NNG, NG, CSS, D-CSS(P), SWS	CAGN, LBV, TLB
Horse Lake Pump Station (Figure 3-5)	DEV, DIST	CAGN, LBV
Horse Lake Power Poles (Figure 3-5)	DEV, DIST, D-CSS, SWS, WUS	LBV
Horse Pasture Pipeline Alignment (Figure 3-6a)	NNG, D-CSS, SWS, WUS	CAGN, TLB
STP 2 Power Poles (Figure 3-6b)	DEV, NNG, D-CSS	CAGN, LBV, TLB
STP 2 pipeline (Figure 3-6b)	DEV, NNG, SWRF, WUS, WET	LBV
STP 2 pump station (Figure 3-6b)	DEV	None
STP 3 New Tributary Area Pump Station (Figure 3-7)	DEV	AT, LBV
Stuart Mesa Reuse Water to Farmer's Pond (Figure 3-8)	DEV, MSS, D-CSS, D-CSS(P)	CAGN
Stuart Mesa Housing Reuse Line (Figure 3-8)	DEV, CSS, EUC, CSS(P), D-CSS(P)	CAGN, AT
Stuart Mesa Housing Pump Station, and Tank (Figure 3-8)	DEV, CSS(P)	CAGN, AT
Reclaimed water supply to Mainside (Figure 3-9a-c)	DEV, DIST, CSS, D-CSS, NNG, MG	CAGN, TLB

Notes: ⁽¹⁾WUS=waters of the U.S., WET=wetland, NJ=non-jurisdictional





Pipeline from Lemon Grove Pump Station/Connection to TTP Headworks Plant Communities, Aquatic Habitats, and Special Status Species

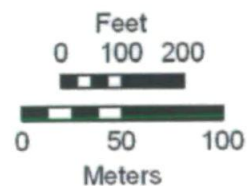
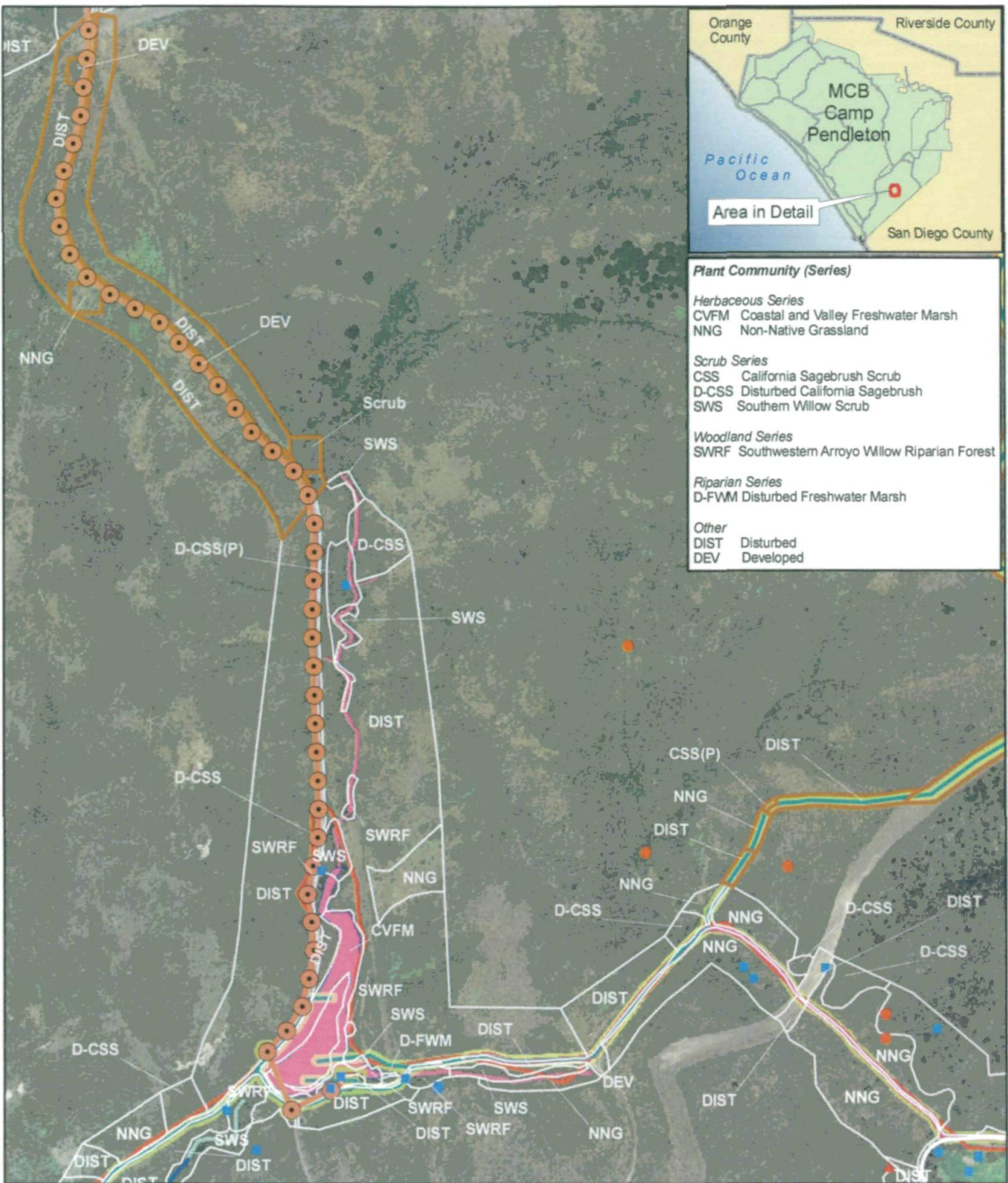


Figure 3-2



Gooseneck Lake Power Poles and Pump Station Plant Communities, Aquatic Habitats, and Special Status Species

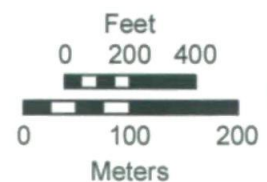
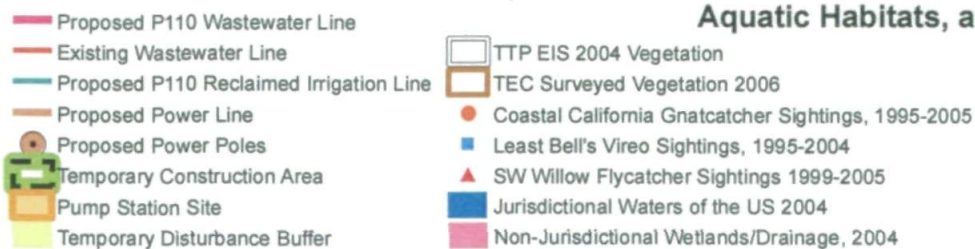
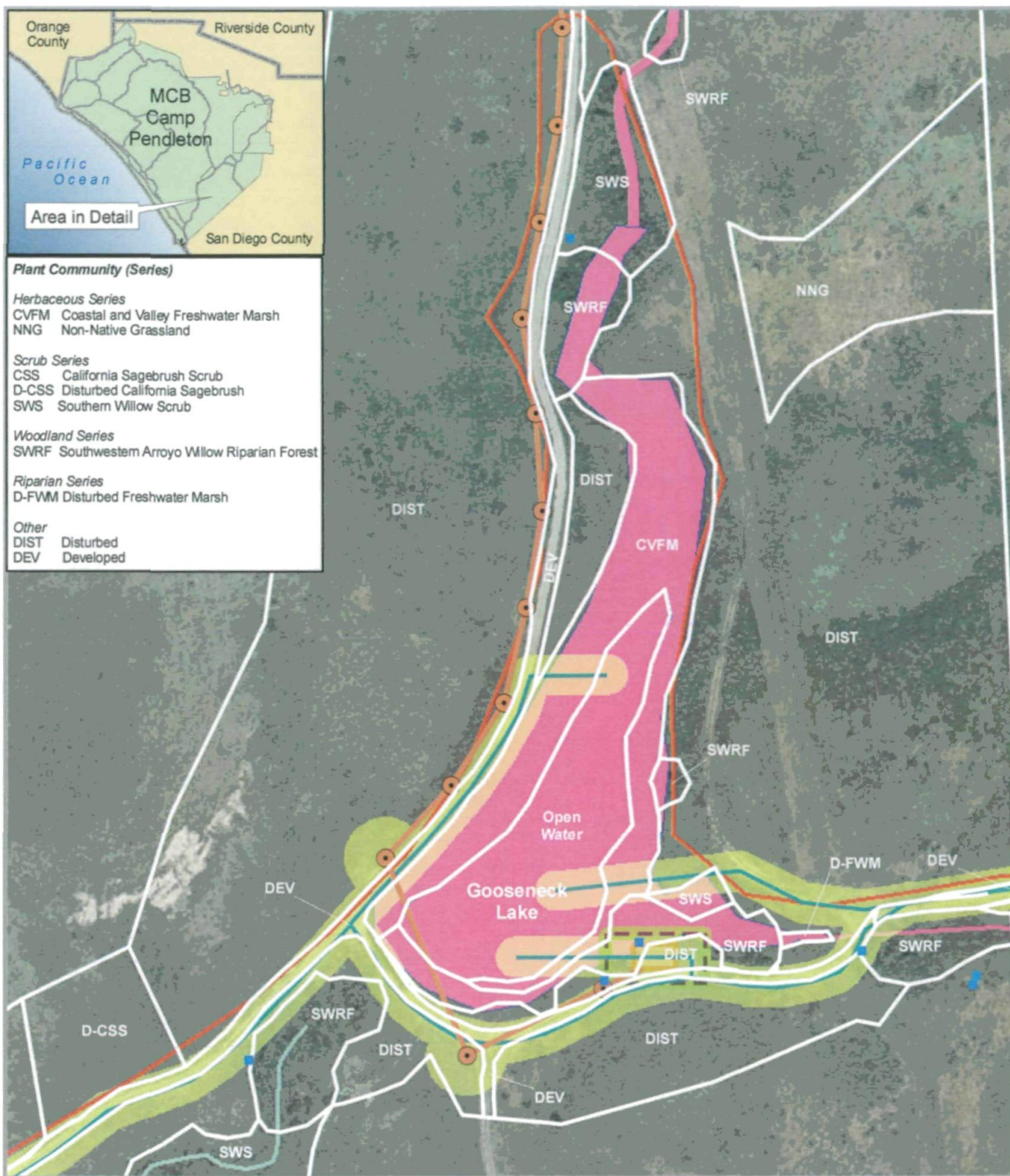
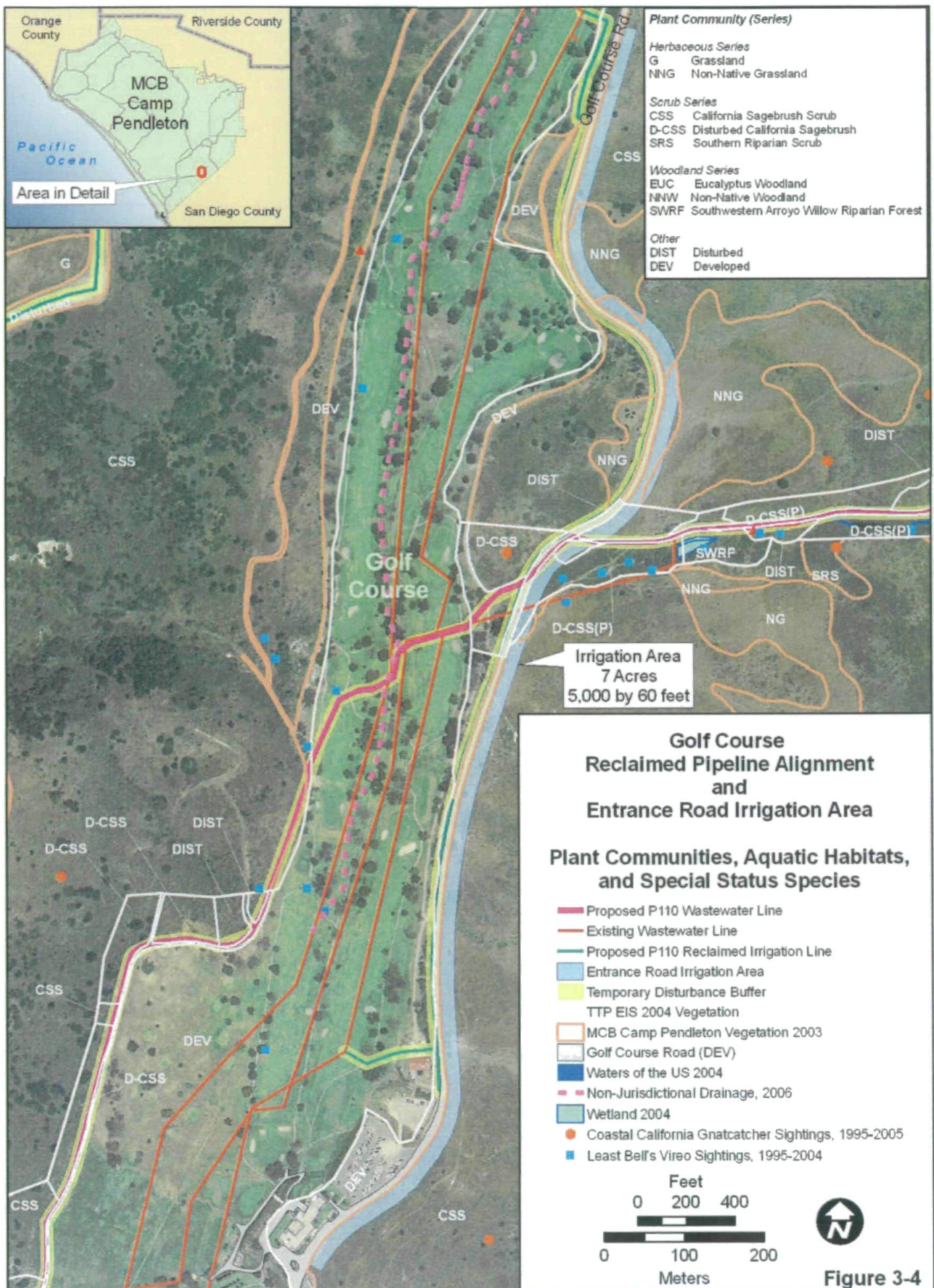
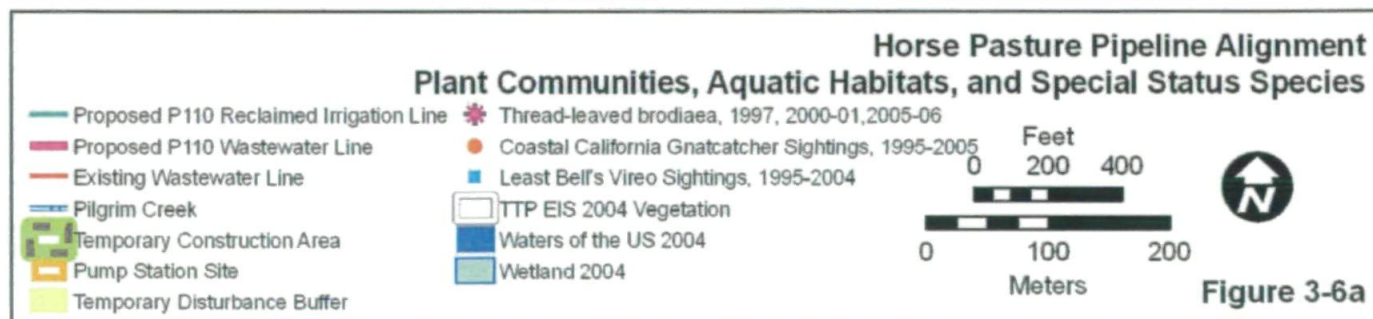


Figure 3-3a







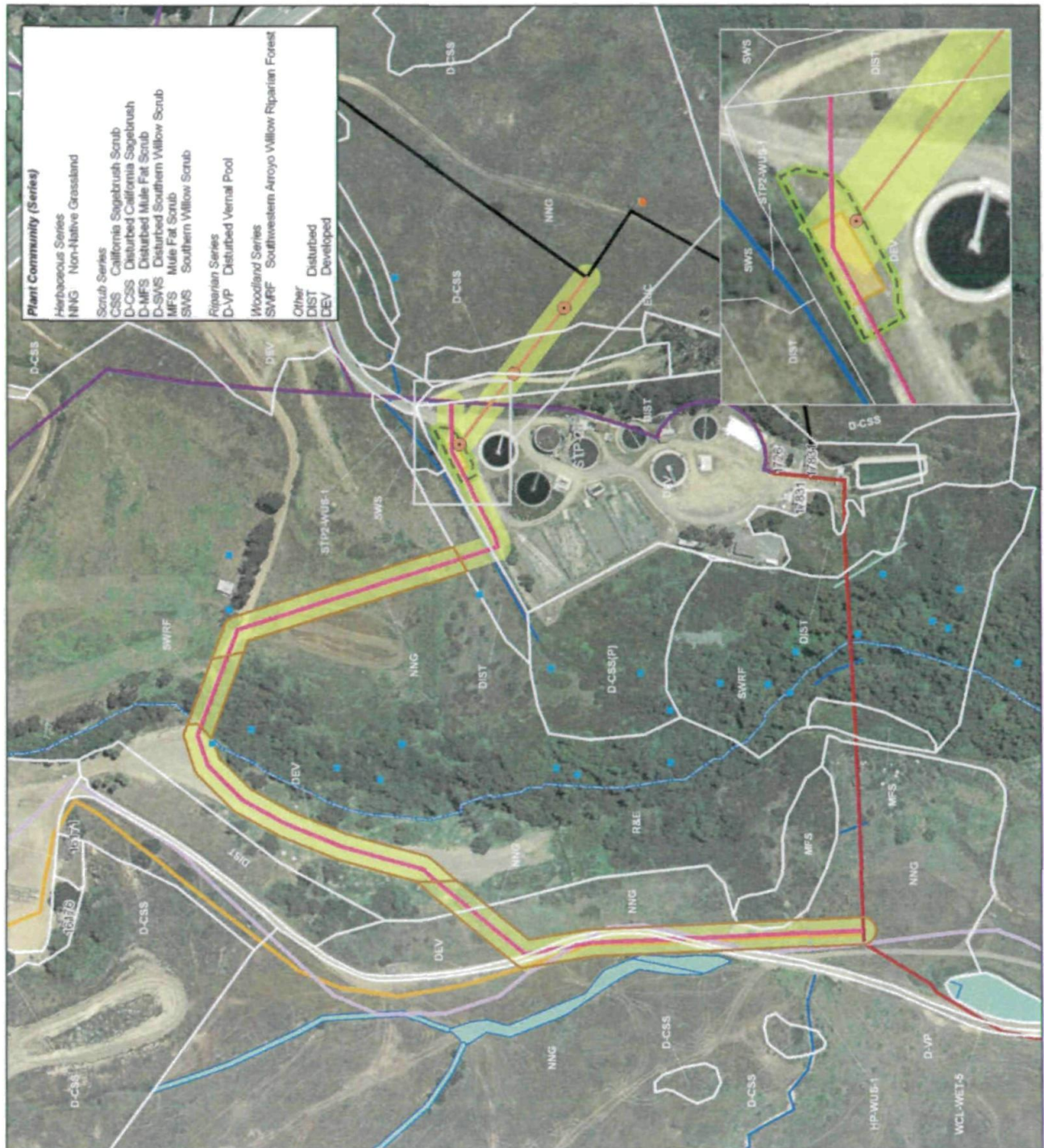


Figure 3-6b



STP 3 New Tributary Area Pump Station Plant Communities, Aquatic Habitats, and Special Status Species

- Existing Wastewater Line
- Temporary Construction Area
- Pump Station Site
- Wetland 2004
- Least Bell's Vireo Sightings, 1995-2004
- SW Willow Flycatcher Sightings 1999-2005
- Arroyo Toad Sightings, 1996-97, 2002-03

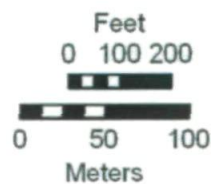


Figure 3-7



Stuart Mesa Housing/Farmer's Pond Reuse Lines, Pump Station, Tank, and Irrigation Lines Plant Communities, Aquatic Habitats, and Special Status Species

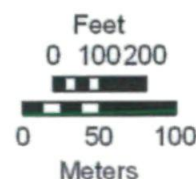
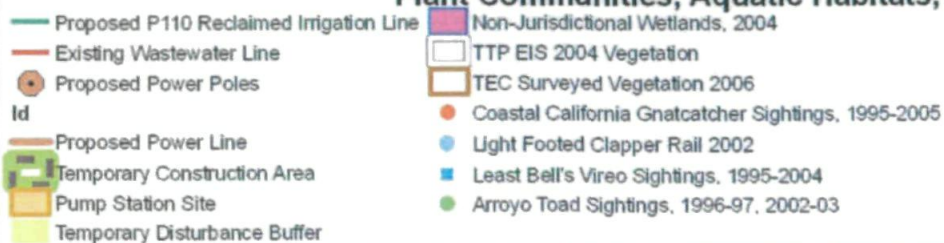
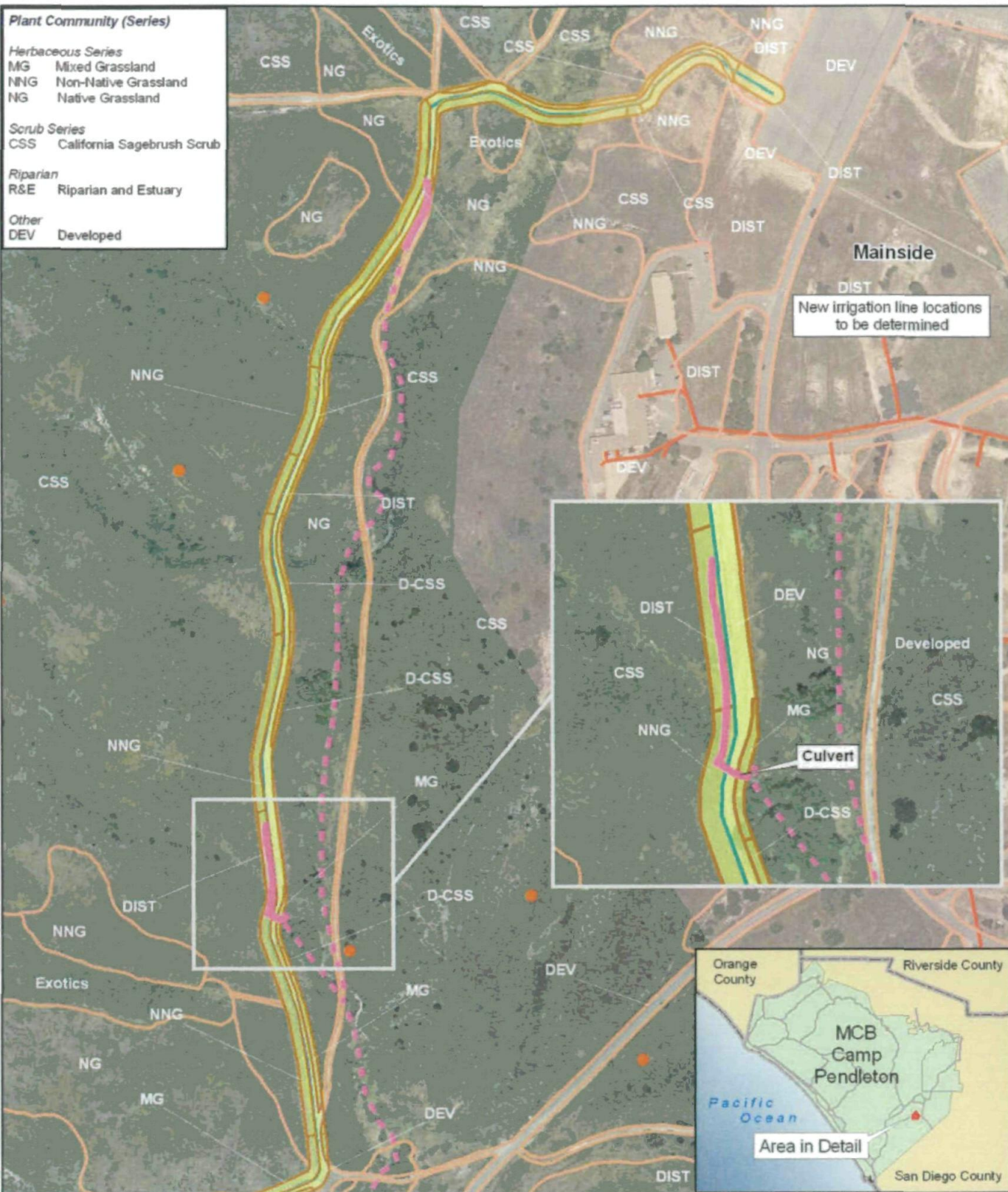


Figure 3-8



Reclaimed Water Supply to Mainside - North Plant Communities, Aquatic Habitats, and Special Status Species

- Proposed P110 Reclaimed Irrigation Line
- Existing Wastewater Line
- Temporary Disturbance Buffer
- Irrigation Lines TBD
- TEC Surveyed Vegetation 2006
- MCB Camp Pendleton Vegetation 2003
- Coastal California Gnatcatcher Sightings (1995-2005)
- Non-Jurisdictional Drainage
- Non-Jurisdictional Drainage, 2006 (Not GPS'd)

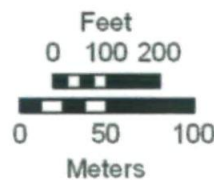
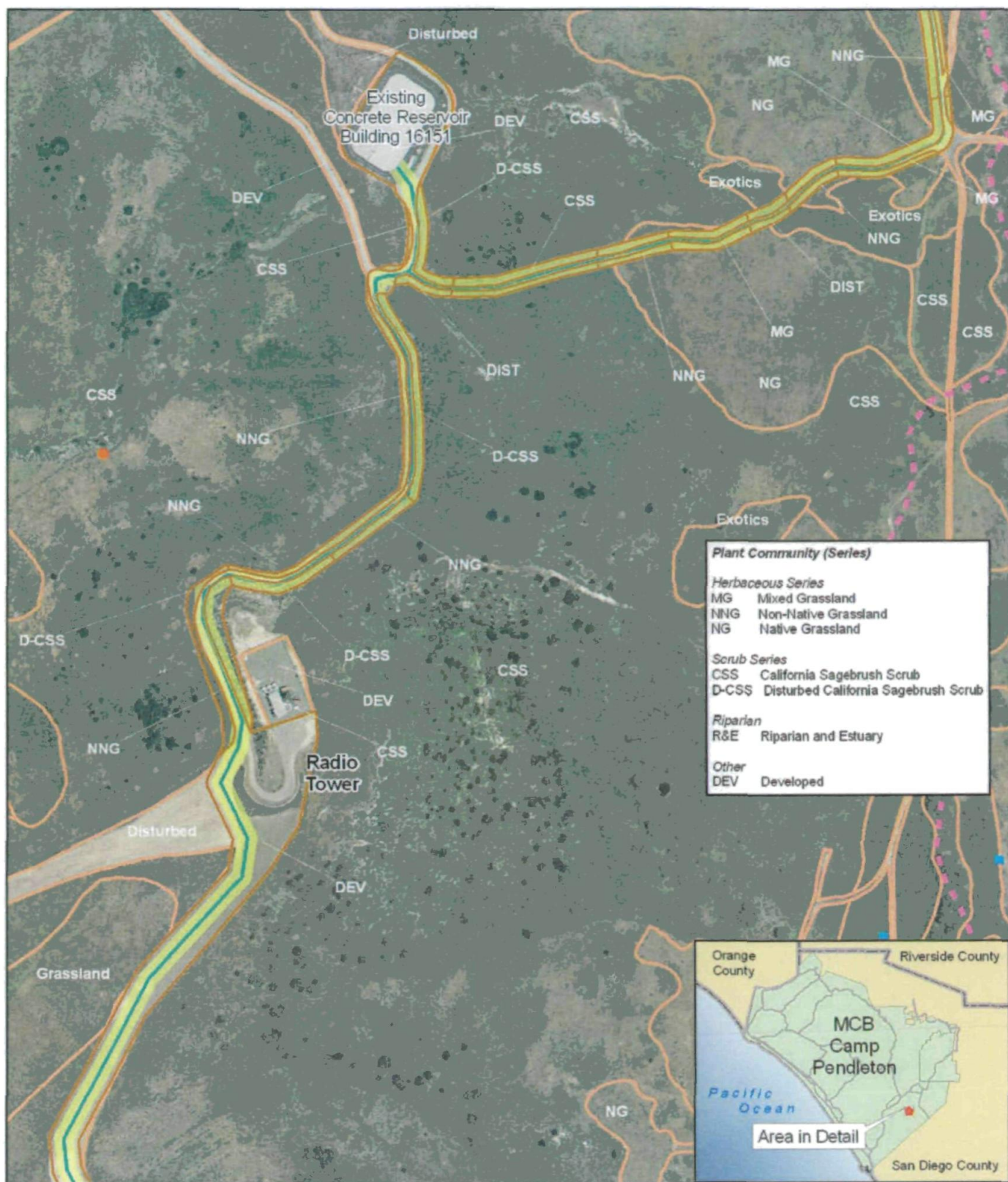


Figure 3-9a



Reclaimed Water Supply to Mainside - North Central Plant Communities, Aquatic Habitats, and Special Status Species

- Proposed P110 Reclaimed Irrigation Line
- Temporary Disturbance Buffer
- TEC Surveyed Vegetation 2006
- MCB Camp Pendleton Vegetation 2003
- Coastal California Gnatcatcher Sightings, 1995-2005
- Least Bell's Vireo Sightings, 1995-2004
- Non-Jurisdictional Drainage, 2006 (Not GPS'd)

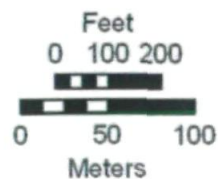
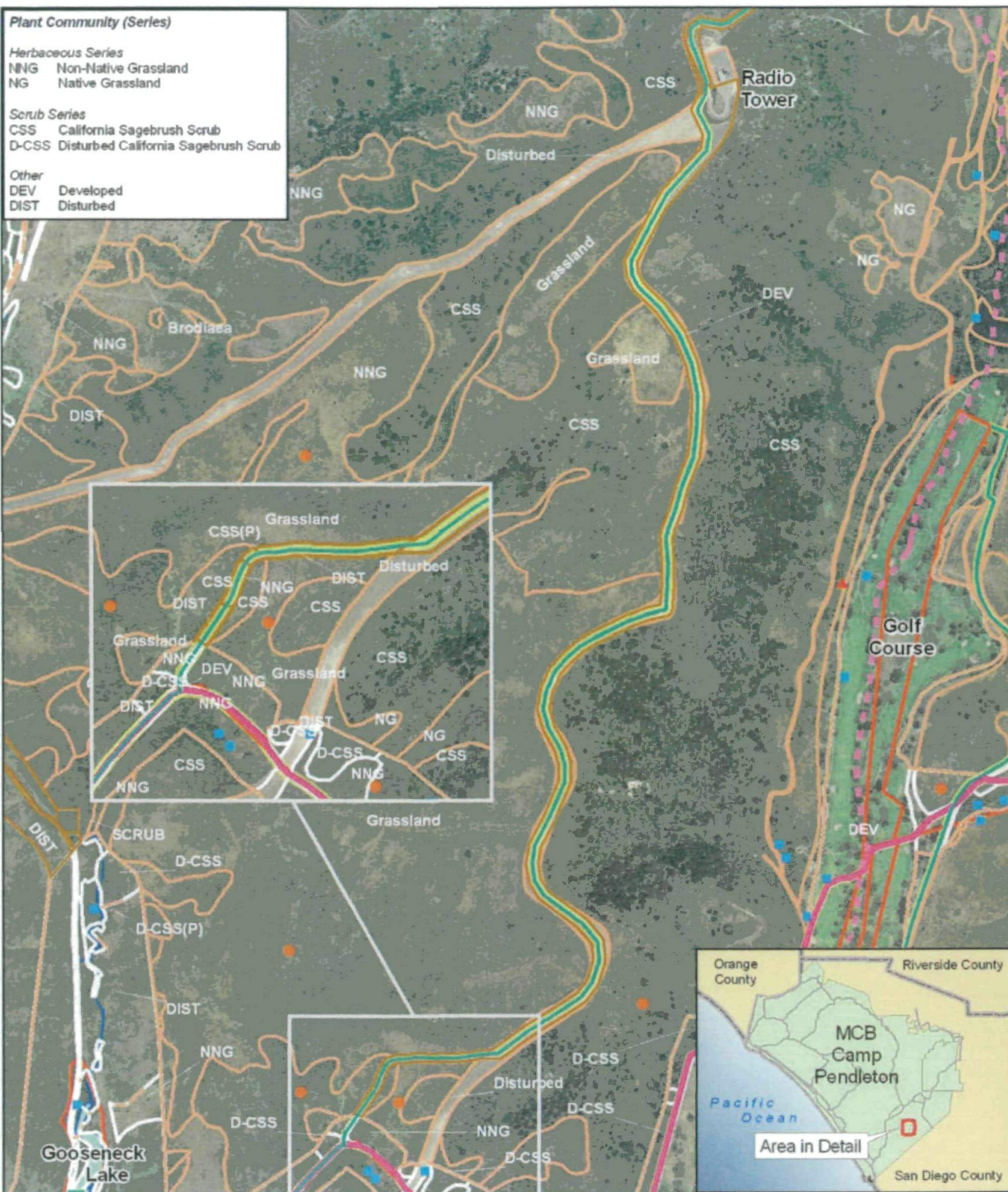


Figure 3-9b



Reclaimed Water Supply to Mainside - South Plant Communities, Aquatic Habitats, and Special Status Species

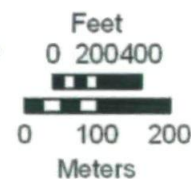


Figure 3-9c

3.2.2.2 Wildlife

Wildlife includes all native or naturalized animal species, with the exception of special-status species discussed in the next section. With its large extent and diversity of aquatic and terrestrial habitats, MCB Camp Pendleton has documented the presence of more than 60 fish, 10 amphibian, 30 reptile, 50 mammal, and 300 bird species (USMC 2001). Some species, especially among the special-status species (see section 3.2.2.3), are limited in distribution to a single habitat (e.g., riparian habitat, coastal sage scrub, or vernal pools). Most, however, are generalists and will utilize multiple habitats for shelter and foraging. All of the Base's reptiles and amphibians, most of the mammals, and a small percentage of the birds, are year-round residents. The remainder are seasonal residents, wide-ranging migrants, or transient visitors. Nearly all of the bird species are protected under the Migratory Bird Treaty Act and are given special consideration under Executive Order 13186, *Migratory Bird Conservation*.

The proposed project area transects a number of plant communities (Table 3.2-1) resulting in a diverse assemblage of wildlife species within or adjacent to the project area. Two amphibians, eight reptiles, nine mammals, and over 100 bird species were observed within or adjacent to the project area during surveys for the TTP EIS, during biological monitoring of TTP construction, and during biological surveys for this Supplemental EA (NAVFAC SW 2004a, 2006a). Three of the reptiles are species of special concern and are discussed in section 3.2.2.3.

The majority of the proposed project area is DIST or DEV and does not support many wildlife species. Species observed in the DIST and DEV areas during surveys for the TTP EIS, during biological monitoring of TTP construction, and during biological surveys for this Supplemental EA were those adapted to human disturbances and include American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), California ground squirrel (*Spermophilus beecheyi*), and Audubon's cottontail (*Sylvilagus audubonii*) (NAVFAC SW 2004a, 2006).

Mammals were not frequently observed but mammal signs, including tracks or scat, were observed. Several mammal tracks were observed along the dirt access road on the west side of the TTP site (Figure 3-2). Tracks and evidence of mule deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), dusky-footed woodrat (*Neotoma fuscipes*), pocket gopher (*Thomomys bottae*), and deer mouse (*Peromyscus maniculatus*) were detected. Dusky-footed woodrat nests were observed outside of the project footprint in the D-CSS on the south side of the TTP site (NAVFAC SW 2006). Long-tailed weasels (*Mustela freneta*) occur on MCB Camp Pendleton and have the potential to occur in the project area.

Common lizards observed within the project area include the western fence lizard (*Sceloporus occidentalis*) and southern alligator lizard (*Elgaria multicarinata*). Several non-venomous snake species were encountered within the TTP construction area. These included gopher snake (*Pituophis melanoleucus*), common kingsnake (*Lampropeltis getulus*), and coachwhip (red racer) (*Masticophis flagellum piceus*) (NAVFAC SW 2006). These snakes are common on MCB Camp Pendleton and are likely to occur in other areas of the project. The southern pacific rattlesnake (*Crotalus viridis helleri*) was observed within the TTP construction site and is common throughout MCB Camp Pendleton (NAVFAC SW 2006).

Two frogs, the non-native bullfrog (*Rana catesbeiana*) and native pacific tree frogs (*Pseudacris regilla*), were observed in the TTP construction area (NAVFAC SW 2006). Frogs are likely to be found in Gooseneck Lake but were not observed during October 2006 surveys.

Common birds observed in CSS and D-CSS within the project area include bushtit (*Psaltiriparus minimus*), wrenit (*Chamaea fasciata*), California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo maculatus*), Anna's hummingbird (*Calypte anna*), and house wren (*Troglodytes aedon*) (NAVFAC SW 2006). Common birds observed in riparian habitat within the project area include song sparrow (*Melospiza melodia*), lesser goldfinch (*Carduelis psaltria*), mourning dove (*Zenaida macroura*), common yellow-throat (*Geothlypis trichas*), and black phoebe (*Sayornis nigricans*) (NAVFAC SW 2004a). Common birds observed in NNG within the project area include western meadowlark (*Sturnella neglecta*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and American kestrel (*Falco sparverius*) (NAVFAC SW 2004a).

Several species of butterflies were observed within the TTP site area during Quino checkerspot butterfly surveys for the TTP EIS, including acmon blue (*Icaria acmon*) and anise swallowtail (*Pipilio zelicaon*) (NAVFAC SW 2004a). The eucalyptus groves in the vicinity of the proposed Lemon Grove pump station and west of the railroad tracks are a known overwintering site for the monarch butterfly (*Danaus plexippus*). MCB Camp Pendleton is the largest monarch butterfly wintering site in San Diego County and the largest wintering site south of Ventura County. In an average year, up to 10,000 monarchs will roost within the eucalyptus trees adjacent to the STP 13 site and to the west near I-5 (Monarch Program 2003).

3.2.2.3 Special Status Species

This category includes federally listed threatened and endangered species and other special status species.

Federally Listed Species

Nineteen federally threatened or endangered terrestrial and aquatic species are found on, transit through, or have the potential to occur on MCB Camp Pendleton. Descriptions of all threatened and endangered species known or likely to occur on MCB Camp Pendleton are included in the Integrated Natural Resource Management Plan (USMC 2001). Table 3.2-2 summarizes the potential for each species to occur within or in the vicinity of the proposed project area, based on previous GIS information and the TTP EIS (NAVFAC SW 2004a). Each species that is known or likely to occur in areas affected by the project is discussed in more detail below.

Thread-leaved Brodiaea

TLB was listed as federally threatened in October 1998 (USFWS 1998b). Critical habitat was finalized by the USFWS in December 2005 (USFWS 2005a); no lands on MCB Camp Pendleton are critical habitat. This species grows from a corm and is typically found in clay or clay loam soils in grasslands on level to gradually (< 10%) sloping sites, and is unlikely to be observed except during its short flowering season, typically in late spring. During 2006 surveys for TLB for the P-110 pipeline, TLB was found on the northeast side of the horse pasture and within the horse stables (TEC 2006). TLB has the potential to occur in the NNG in the area of the proposed power poles east of STP 2 and in the NNG and MG along the access road from Gooseneck Lake to Mainside. Focused pre-construction surveys would be conducted during the appropriate flowering period in these areas to confirm presence/absence of TLB.

Table 3.2-2. Potential Occurrence of Federally Listed Threatened and Endangered Species on P-110 Project Sites

<i>Common Name</i>	<i>Scientific Name</i>	<i>Federal Status</i>	<i>Habitat</i>	<i>Known or Potential Occurrence on Project Sites</i>
Plants				
San Diego button-celery	<i>Eryngium aristulatum</i> var. <i>parishii</i>	Endangered	Vernal pools	Not observed or likely; sites are outside geographic range.
spreading navarretia	<i>Navarretia fossalis</i>	Threatened	Vernal pools	Not observed or likely due to lack of habitat.
thread-leaved brodiaea	<i>Brodiaea filifolia</i>	Threatened	Grasslands	Occurs in the horse pasture. Potentially occurs in NNG and MG habitat within the proposed project area.
Invertebrates				
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	Endangered	Vernal pools	Not observed or likely due to lack of VPs.
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	Endangered	Vernal pools	Not observed or likely due to lack of VPs.
quino checkerspot butterfly	<i>Euphydryas editha quino</i>	Endangered	Grassland, coastal sage scrub	No known occurrence on MCB Camp Pendleton.
Fish				
southern steelhead trout	<i>Oncorhynchus mykiss</i>	Endangered	Rivers and major streams	Not known or likely to occur due to lack of habitat.
tidewater goby	<i>Eucyclogobius newberryi</i>	Endangered	Estuaries/coastal brackish water	Not known or likely to occur due to lack of habitat.
Amphibians				
arroyo toad	<i>Bufo californicus</i>	Endangered	Rivers, streams, surrounding uplands	Potential to occur at STP 3 PS and along the Stuart Mesa access roads.
Birds				
bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Estuaries, lakes and major rivers	Not known or likely due to lack of habitat.
brown pelican	<i>Pelecanus occidentalis</i>	Endangered	Coastal shorelines, open water	Not known or likely due to lack of habitat.
California least tern	<i>Sterna antillarum browni</i>	Endangered	Sandy beaches and coastal dunes	Not known or likely due to lack of habitat.
coastal California gnatcatcher	<i>Poliophtila californica californica</i>	Threatened	Coastal sage scrub	Occurs in CSS and D-CSS within the project buffer and in the Golf Course Entrance Road irrigation area.
least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	Willow-dominated riparian	Occurs in riparian habitat within and adjacent to the project buffer.
light-footed clapper rail	<i>Rallus longirostris levipes</i>	Endangered	Coastal fresh and salt water marshes	Not known or likely due to lack of habitat.
southwestern willow flycatcher	<i>Empidonax traillii eximius</i>	Endangered	Willow-dominated riparian	Occurs in the riparian habitat east of Vandegrift Road east of SRTTP.
western snowy plover	<i>Charadrius alexandrinus nivosus</i>	Threatened	Sandy beaches	Not known or likely due to lack of habitat.

<i>Common Name</i>	<i>Scientific Name</i>	<i>Federal Status</i>	<i>Habitat</i>	<i>Known or Potential Occurrence on Project Sites</i>
<i>Mammals</i>				
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	Endangered	Coastal mesas, in grassland with sandy clay loam soil.	Not known or likely; sites are outside of known range.
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	Endangered	Sparse coastal sage scrub and grassland	Sites 1 and 2 outside of historical range; not found in survey of Range 108 site.

Sources: MCB Camp Pendleton GIS; USMC 2006

Note: **Bold** Indicates Known or Potential Occurrence)

Arroyo Toad

The AT was listed as federally endangered on 16 December 1994 (USFWS 1994b). Critical habitat has not been designated on MCB Camp Pendleton (USFWS 2005c). A recovery plan is available for this species (USFWS 1999). The AT is a small, light greenish-grey or buff-colored toad with dark-spotted, warty skin. Historically, arroyo toads were found along the length of drainages from Southern California into northwestern Baja California, Mexico. On MCB Camp Pendleton, the AT occurs in three drainages: Santa Margarita, San Onofre, and San Mateo. AT requires shallow, slow moving streams and riparian habitat for breeding and is dependent on upland terraces and the marginal zones between stream channels and upland terraces during the non-breeding season, generally late fall and winter (Sweet 1992).

AT has the potential to occur in or around STP 3. AT has been documented in the SMR floodplain approximately 500 ft (152 m) from the proposed STP 3 PS (NAVFAC SW 2004a). AT has been documented approximately 300 ft (91 m) from the proposed Stuart Mesa reuse line (NAVFAC SW 2004a). However, AT have never been documented west of Stuart Mesa Road and are not likely to occur within the reuse line project area.

Coastal California Gnatcatcher

The CAGN was listed as federally threatened on 30 March 1993 (USFWS 1993). Critical habitat for the CAGN was proposed on 24 April 2003. The proposed critical habitat on Camp Pendleton is essential habitat outside the training area boundaries (USFWS 2003). The proposed project areas do not overlap proposed CAGN critical habitat (USFWS 2003).

CAGN is restricted to California and Baja California, Mexico, and in the U.S. is found from Ventura County south to San Diego County and east to San Bernardino County. CAGN is an obligate, permanent resident of CSS vegetation, but the species makes limited use of adjacent habitats outside of the breeding season. The breeding season extends from mid-February through late August, with peak nest initiations occurring from mid-March through mid-May (USFWS 1997).

CAGN occupied CSS is found northeast of the intersection of Vandegrift Blvd. and Ash Road, on the east side of the golf course, along the access roads to Stuart Mesa Housing and Farmer's pond, and along the access road from Gooseneck Lake to Mainside. Small patches of CAGN occupied D-CSS occur in the vicinity of the SRTTP, STP 2, within the horse pasture, and from the golf course to Horse Lake.

Least Bell's Vireo

The LBV was listed as federally endangered on 2 May 1986 (USFWS 1986). Critical habitat for the LBV was designated in six southern California counties on 2 February 1994 (USFWS 1994a). MCB Camp Pendleton was excluded from this designation due to a Memorandum of Understanding with the USFWS. A draft recovery plan is available for this species (USFWS 1998a).

The LBV arrives at Camp Pendleton as early as mid-March and leaves for its wintering grounds in Baja California in August. LBV primarily inhabit dense willow-dominated riparian habitats with lush understory vegetation. LBV forage primarily in willows (*Salix* spp.) (USMC 2001).

LBV occupied riparian habitat (SWRF & SWS) is found in the vicinity of the pipeline from SRTTP to the bluffs, Gooseneck Lake pump station and power poles, the golf course reclaimed pipeline alignment and Entrance Road irrigation area, Horse Lake pump station and power lines, STP 2 pipeline, power poles and pump station, and STP 3 pump station.

Southwestern Willow Flycatcher

The SWF was listed as federally endangered on 27 February 1995 (USFWS 1995b). Critical habitat for the SWF was designated in 19 October 2005 (USFWS 2005b). MCB Camp Pendleton was excluded from this designation due to a Memorandum of Understanding with the USFWS. A final recovery plan is available for this species (USFWS 2002).

The SWF appear to prefer streams of lower gradient and/or more open valleys with a wide/broad floodplain for nesting. SWF nest in thickets of trees and shrubs ranging in height from 6 to 98 ft (2 to 30m). Nest sites typically have a dense tree and/or shrub canopy. SWF breeding habitat can generally be organized into three broad habitat types; those dominated by native vegetation (willows and cottonwoods), by non-native vegetation (salt cedar), and those with a mix of native and non-native vegetation (salt cedar and willows). The SWF arrives in southern California in the mid-May and may be present until mid-August (USFWS 2005b).

The only location that SWF has been documented within the new project areas is east of the proposed pipeline alignment from SRTTP to the bluffs, southeast of the Stuart Mesa/Ash Road and Vandegrift Blvd. intersection (NAVFAC SW 2004a).

Other Special Status Species

At least fifteen California Department of Fish and Game species of special concern (three reptiles and twelve birds) potentially occur within the proposed project areas. The species of concern were observed during biological monitoring for the TTP construction and during surveys for the TTP EIS. The two striped garter snake (*Thamnophis hammondi*) and the coastal rosy boa (*Charina [Lichanura] trivirgata roseofusca*) were observed in the vicinity of the TTP and the northern red-diamond rattlesnake (*Crotalus ruber ruber*) was observed along the western edge of the golf course near dense CSS. The Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) was observed in pickleweed along the pipeline corridor from Stuart Mesa to the agricultural fields. The Bell's sage sparrow (*Amphispiza belli belli*) was observed in CSS and scrubby vegetation west of the golf course, in the horse pasture, and in the vicinity of the TTP. The California horned lark (*Eremophila alpestris actia*) was observed in grassland habitat west of the golf course, in the horse pasture, and the vicinity of the TTP. The yellow warbler (*Dendroica petechia*) was observed in riparian areas and woodland edges west of the golf course, in the horse pasture, and in the vicinity of the TTP. The Copper's hawk (*Accipiter cooperii*) was observed in the horse pasture and in the vicinity of the TTP. The loggerhead shrike (*Lanius ludovicianus*) was observed in open areas

west of the golf course, in the horse pasture, and in the vicinity of the TTP. The northern harrier (*Circus cyaneus*) was observed west of the golf course, in the horse pasture, in the pipeline corridor from Stuart Mesa Road to the agricultural fields, and in the vicinity of the TTP. The prairie falcon (*Falco mexicanus*) was observed west of the golf course and in the vicinity of the TTP. The sharp-shinned hawk (*Accipiter striatus*) was observed in riparian habitats west of the golf course and in the vicinity of the TTP. The white-tailed kite (*Elanus leucurus*) was observed in open habitat west of the golf course, in the horse pasture, and in the vicinity of the TTP. The yellow-breasted chat (*Icteria virens*) was observed in riparian habitat west of the golf course, in the horse pasture, and in the vicinity of the TTP. The southern California rufous-crowned sparrow (*Aimophila ruficeps*) was observed in grasslands and CSS west of the golf course, in the horse pasture, and in the vicinity of the TTP (NAVFAC SW 2004a, 2006).

One naturally occurring special-status California Native Plant Society [CNPS]-listed plant species of concern occurs in the proposed project area. During surveys for the EA for the installation of a new pump station and force mains, California boxthorn (*Lycium californicum*), a CNPS list 4 plant (limited distribution; not rare, threatened or endangered), was observed on the north side of the SMR along the access road from Stuart Mesa to Stuart Mesa Housing (NAVFAC SW 2004b).

3.2.3 Environmental Consequences

The following section describes the potential direct and indirect impacts on biological resources that would result from the Proposed Action. Factors especially relevant to determining whether impacts would be significant include the severity of any effects on individuals or habitats of threatened and endangered species.

Direct impacts are associated with ground-disturbing activities resulting from construction of the facilities (e.g., removal of vegetation by grading or direct mortality of species). Direct impacts may be either temporary (reversible) or permanent (irreversible). *Indirect impacts* are caused by or result from project-related activities, but occur later in time. Indirect impacts are diffuse, resource-specific, and less amenable to quantification or mapping than direct impacts, but still need to be considered. Indirect impacts such as noise and visual disturbance, and runoff during construction, and resulting from future use of the constructed facilities, extend beyond the immediate construction footprint(s).

This analysis is limited to areas of impact that were not analyzed in the previous TTP EIS and associated BO (NAVFAC SW 2004a; USFWS 2004).

3.2.3.1 Plant Communities and Aquatic Habitats

Plant Communities

Potential temporary impacts to vegetation from the implementation of the proposed action are summarized in Table 3.2-3 and potential permanent impacts are summarized in Table 3.2-4. The potential temporary impacts from the construction of the wastewater and reclaimed pipelines include the proposed pipeline segments for this EA and the pipeline segments analyzed for the TTP EIS (NAVFAC 2004a). Pipeline construction would impact plant communities and aquatic habitats temporarily and would be aligned along existing dirt access roads to the maximum extent possible. A 50-ft (15-m) construction buffer, the maximum area of temporary disturbance, has been evaluated along the pipeline segments.

Table 3.2-3. Potential Temporary Impacts to Vegetation Types Associated with the Reclaimed and Wastewater Pipeline 50-Foot Corridors, Power Poles, and Pump Station Construction Areas

<i>Vegetation or Cover Types</i>	<i>Wastewater Line⁽¹⁾</i>	<i>Reclaimed Line⁽²⁾</i>	<i>Power Poles⁽³⁾</i>	<i>Pump Station Construction Area</i>	<i>Totals (acres)</i>
<i>Coastal Sage</i>					
CSS	3.3814	3.5092	0.0001		6.8907
CSS(P)	0.0551	0.9935	0.0356	0.0596	1.1438
D-CSS	1.7585	2.9462	0.1632	0.0727	4.9406
D-CSS(P)	0.8336	1.5161	0.1155		2.4652
<i>Riparian</i>					
MFS	0.2241	0.5379			0.7620
D-MFS		0.7577			0.7577
SWRF	0.5442	1.1035		0.0100	1.6577
SWS	0.3986	1.0034			1.4020
<i>Misc. Cover Types</i>					
CVFM		0.3205		0.0003	0.3208
DEV	13.7242	28.9019	0.5016	0.9654	44.0931
DIST	3.4822	8.7720	1.3723	0.0432	13.6697
D-SWS		0.0081			0.0081
EUC		0.1981			0.1981
FWM		0.2190			0.2190
MG	0.0004	0.6293			0.6297
MSS		0.3100			0.3100
NNG	3.8903	17.5444	0.0448		21.4795
Open Water		0.4911			0.4911
CAM		0.3796			0.3796
CBM		0.0749			0.0749
D-CAM		0.0300			0.0300
EXOTICS	0.0228	0.0017			0.0245
NG		0.0006			0.0006
NNW		0.3653			0.3653
Totals (acres)	28.3154	70.6140	2.2331	1.1512	102.3137

Notes:

- (1) All wastewater line impact areas are considered temporary impacts. All conveyance line impact areas that occur within a reclaimed line impact area are accounted for under the conveyance line column and are considered temporary impacts. Conveyance line impacts include all conveyance lines associated with the TTP EIS and this Supplemental EA.
- (2) All Reclaimed line impact areas are considered temporary impacts. All reclaimed line impact areas that occur within a conveyance line impact area are accounted for under the conveyance line column and are considered temporary impacts. Reclaimed line impacts include all reclaimed lines associated with the TTP EIS and this Supplemental EA.
- (3) Power pole impacts are considered temporary except for a 2 ft x2 ft area around the pole center.

Table 3.2-4. Potential Permanent Impacts to Vegetation Types Associated with the Pump Stations, Power Poles, and Golf Course Irrigation Area

<i>Vegetation or Cover Types</i>	<i>Lemon Grove</i>	<i>Goose-neck</i>	<i>Horse Lake</i>	<i>STP 3</i>	<i>STP 2</i>	<i>Stuart Mesa</i>	<i>Golf Course Irrigation Area</i>	<i>Power Poles</i>	<i>Total (acres)</i>
<i>Coastal Sage</i>									
CSS							5.4869		5.4869
CSS(P)						0.0183		0.0001	0.0184
D-CSS	0.0610							0.0005	0.0615
D-CSS(P)							0.4407	0.0005	0.4412
<i>Riparian</i>									
SWRF		0.0070							0.0070
SWS							0.0086		0.0086
<i>Misc. Cover Types</i>									
DEV			0.0176	0.1486	0.0293		0.0777	0.0002	0.2734
DIST	0.0018	0.0285					0.4937	0.0033	0.5273
NNG							0.6793	0.0001	0.6794
NG							0.6882		0.6882
NNW							0.0611		0.0611
Totals (acres)	0.0628	0.0355	0.0176	0.1486	0.0293	0.0183	7.9362	0.0047	8.253

Pump station construction would permanently impact 0.0176 – 0.1486 acre (0.0071 – 0.601 ha) per pump station. Proposed pump station locations for Horse Lake, STP 3, and STP 2, are within disturbed or developed areas. A temporary construction buffer would surround each pump station. The power poles would be aligned along existing dirt access roads to the maximum extent possible. The permanent impact of each power pole would be 2.0 ft (0.6 m) x 2.0 ft (0.6 m). A 50-ft (15-m) corridor has been evaluated along the power pole routes. The largest permanent impact, 7.94 acres (3.21 ha) of vegetation, is the golf course entrance road irrigation area.

The majority of the CSS and D-CSS within the proposed project areas would be temporarily impacted, including 6.89 acres (4.45 ha) of CSS, 1.14 acres (0.46 ha) of CSS(P), 4.94 acres (2.00 ha) of D-CSS and 2.47 acres (1.00 ha) of D-CSS(P). Potential permanent impacts for the construction of the lemon grove PS, Stuart Mesa PS, and golf course irrigation area to CSS could be 5.50 acres (2.22 ha) of high quality habitat and 0.50 acre (0.20 ha) of D-CSS. The lemon grove PS is located within D-CSS vegetation; which is significantly disturbed due to annual lemon grove pond maintenance. Based on implementation of the SCMs presented in section 2.3, significant impacts to CAGN occupied CSS and D-CSS would not occur.

Permanent impacts from implementation of the Proposed Action to riparian habitat would be avoided by implementation of the avoidance, minimization, and compensation measures listed in the SCMs. Temporary impacts to 1.66 acres (0.67 ha) of SWRF, 1.40 acres (0.57 ha) of SWS, 0.76 acre (0.31 ha) of MFS, and 0.757 acre (0.3ha) of D-MFS could occur during pipeline, pump station, and power pole construction. Based on implementation of the SCMs presented in section 2.3, significant impacts to riparian habitat would not occur.

Following construction, revegetation of temporarily disturbed areas would occur in accordance with the SCMs. The areas of potential construction do not present difficult conditions such as steep slopes or large areas of sensitive habitat or difficult to restore habitat, such as riparian or CSS. The majority of the project area is disturbed or developed. As a result, confinement of construction activities to specified

areas and implementation of SCMs for erosion control and revegetation would minimize corresponding indirect effects.

Aquatic Habitats

All waters of the U.S. and wetlands within the project area would be avoided to the maximum extent possible. As much as 0.0728 acre (0.0295 ha) of jurisdictional wetlands and waters, 0.0405 acre (0.0164 ha) of wetlands, and 0.0323 acre (0.0131 ha) of waters of the U.S., could be temporarily impacted by the proposed action, as shown in Table 3.2-5 and evaluated in the Delineation of Wetlands and Other Waters of the U.S. Report (Appendix A) and the TTP EIS (NAVFAC SW 2004a).

Table 3.2-5. Potential Temporary Impacts to Jurisdictional Wetlands and Waters of the U.S. Associated with the Reclaimed and Wastewater Pipeline 50-Foot Corridors

Area	Wetland Acreage	Waters of U.S. acreage	Name of Water Feature	Figure Reference ⁽¹⁾	Linear Feet	Total
<i>Reclaimed and Wastewater Pipeline Corridors</i>						
SRTTP to Bluffs	0.0028	0	STP13-WET-7	Figure 3-1	16	0.0028
	0	0.003	STP13-WUS-1a	Figure 3-1	50	0.003
SRTTP to Stuart Mesa	0.004	0	STP13-WET-3	Figure 3-2, B-2W*	68	0.004
Golf Course to Horse Lake	0	0.0031	HLCan-WUS-1	Figure 3-4, B-12W*	23.01	0.0031
		0.0029	HLCan-WUS-1	Figure 3-4, B-12W*	50.23	0.0029
Horse Pasture to Vandegrift	0	0.0054	HP-WUS-1	Figure 3-6 a B-13W*	58.79	0.0054
	0	0.0032	HP-WUS-1	Figure 3-6 a B-13W*	33.72	0.0032
	0	0.0035	HP-WUS-2	Figure 3-6 a B-13W*	50.56	0.0035
STP 2 to Horse Pasture	0.0337	0	WCL-WET-1	Figure 3-6 b B-13W*	100	0.0337
	0	0.0034	HP-WUS-1	Figure 3-6 b B-13W*	34.93	0.0034
	0	0.0078	STP2-WUS-1	Figure 3-6 b B-13W*	112.84	0.0078
Total (acres)	0.0405	0.0323				0.0728

Notes: ⁽¹⁾ B-W Figures are from the 2004 TTP EIS Appendix B

SRTTP to Bluffs: The pipeline from SRTTP to the bluffs would cross a small waters of the U.S. and wetland on the west side of Vandegrift Blvd. (Figure 3-1). The area of potential temporary impact to the waters of the U.S., STP13-WUS-1a, is 0.0030 acre (0.0012 ha) and 0.0028 acre (0.0011 ha) of wetland, STP13-WET-7, as determined in the Delineation of Wetlands and Other Waters of the U.S. Report (Appendix A).

SRTTP to Stuart Mesa Housing: The pipeline along the access road from Lemon Grove Road to Stuart Mesa is adjacent to a jurisdictional wetland west of Twin Ponds (Figure 3-2, Figure B-2W of the TTP EIS). The pipeline would be constructed within the existing dirt access road and would avoid the wetland

to the maximum extent possible. As much as 0.004 acre (0.0016 ha) of wetlands, STP13-WET-3, could be impacted. Non-jurisdictional wetlands located east of the access road to Stuart Mesa Housing are just outside the project buffer and would be flagged and avoided (Figure 3-8).

Gooseneck Lake Piping, Pump Station and Power Poles: Gooseneck Lake is a non-jurisdictional water body (USACOE 2004) and is surrounded by wetlands (Figure 3-3a and 3-3b). As described in Chapter 2, Table 2-1, Gooseneck Lake is no longer going to be expanded as described in the TTP EIS (NAVFAC SW 2004a); however, the lake would be used for storage of reclaimed water

The Gooseneck Lake pump station construction would be confined to the disturbed and developed areas and would avoid the nearby wetland to the maximum extent possible.

The majority of the Gooseneck Lake pipeline would be within the existing dirt road and would avoid the non-jurisdictional wetlands to the maximum extent possible. The construction of the pipeline to Gooseneck Lake could temporarily impact non-jurisdictional wetlands. These wetlands were evaluated in the TTP EIS and the amount of temporary impacts to wetland during the construction of the pipes would be less than the total amount of impacts had the expansion of the lake continued as originally planned (NAVFAC SW 2004a). The 50-foot construction buffer for the pipeline is within the wetland area; however, the wetland would be flagged and avoided to the maximum extent possible during construction. The power poles up to Gooseneck Lake would be placed on the south and west side of the existing dirt access road and on the opposite side of the road from Gooseneck Lake and its wetlands.

Golf Course to Horse Lake: Wetlands and waters of the U.S. on the south side of the dirt access road from the golf course to Horse Lake would be avoided to the maximum extent possible; as much as 0.0060 acre (0.0024 ha) of waters of the U.S., HLCan-WUS-1, could be impacted (Figure 3-5 and Figure B-12W of TTP EIS). The power poles up to Horse Lake would be placed on the north side of the road away from and thereby avoiding the wetlands and waters of the U.S.

Horse Pasture to Vandegrift: The pipeline through the horse pasture (Figure 3-6a) crosses perpendicular to waters of the U.S. The impacts to these waters of the U.S. were delineated in the TTP EIS (NAVFAC SW 2004a) and impact acreages were analyzed for this Supplemental EA. As much as 0.0121 acre (0.0049 ha) of waters of the U.S., HP-WUS-1 and HP-WUS-2, could be impacted during construction (Figure B-13W of TTP EIS).

STP 2 to Horse Pasture: The construction of the pipeline from STP 2 to the horse pasture would be installed within the existing dirt road to the maximum extent possible. As much as 0.0112 acre (0.0045 ha) of waters of the U.S., HP-WUS-1 and STP2-WUS-1, and 0.0337 acre (0.0136 ha) of wetland, WCL-WET-1, could be impacted (Figure 3-6b and B-13W of TTP EIS).

The construction of the pipeline from STP 2 to the horse pasture would cross Pilgrim Creek within the existing dirt access road and would be constructed over the existing culvert to avoid impacts to sensitive aquatic areas (Figure 3-6b).

Mainside to Gooseneck Lake: The construction of the pipeline along the access road from Mainside to Gooseneck Lake would be within the existing dirt access road to the maximum extent possible. Drainages (Figure 3-9a) in this area drain into the pond at the northern end of the golf course, an isolated water body as determined in the Delineation of Wetlands and Other Waters of the U.S. Report (Appendix A).

Implementing the SCMs presented in section 2.3, specifically flagging wetlands and waters of the U.S., and the presence of a biological monitor during construction would ensure that the sensitive aquatic areas

would be avoided. The SWPPP and BMPs would avoid or minimize indirect impacts to wetlands and drainages outside the project area. Based on implementation of the SCMs presented in section 2.3, significant impacts to aquatic habitats, including wetlands and waters of the U.S., would not occur. A restoration plan would be provided to address any areas where impacts to wetlands and waters of the U.S. cannot be avoided.

3.2.3.2 Wildlife

Construction of the P-110 pipeline, pump stations, and power poles would eliminate or displace wildlife temporarily and permanently from undeveloped land that provides wildlife habitat; no impacts are associated with the use of existing developed/disturbed land. Many individuals of the smaller, less mobile, and burrowing species would likely be killed by construction, whereas mobile species would disperse to surrounding areas. Areas of CSS, NNG, and riparian habitat surrounding the proposed project area would remain unaffected. In areas temporarily impacted, wildlife species would likely re-colonize the area after construction. No long-term permanent impacts to wildlife are likely. Therefore, no significant impacts to wildlife, including migratory birds, would occur as a result of construction activities associated with the Proposed Action.

3.2.3.3 Special-Status Species

Federally Listed Species

Based on the information provided in section 3.2.2.3, this section evaluates potential impacts to species that could be present in areas affected by the Proposed Action.

Thread-leaved Brodiaea

TLB is not likely to be impacted by implementation of the Proposed Action. The pipeline traversing through the horse pasture was re-designed and re-aligned to avoid TLB (Figure 3-6a). Preconstruction surveys within potential TLB grassland habitat would be conducted. If TLB is found, it would be avoided through implementation of SCMs or transplanted in accordance with the TTP EIS BO (USFWS 2004). Based on implementation of the SCMs presented in section 2.3 and through avoidance measures during the design process, significant impacts to TLB would not occur.

Arroyo Toad

AT are not likely to be impacted by implementation of the Proposed Action. The only project component adjacent to AT habitat is STP 3. AT have been observed less than 0.6 mile (1.0 km) east of the access road to Stuart Mesa housing; however, AT have never been observed west of Stuart Mesa Road (Figure 3-8). To minimize impacts to AT potentially occurring at STP 3, SCMs would be implemented. If an AT is observed at STP 3 or along the Stuart Mesa Housing access road, all construction would stop until a qualified biologist can identify and relocate the AT. Based on implementation of the SCMs presented in section 2.3, significant impacts to AT would not occur. Thus, AT is not likely to be adversely affected.

Coastal California Gnatcatcher

CAGN occupied CSS or D-CSS is found northeast of the intersection of Vandegrift Blvd. and Ash Road, from SRTTP to the bluffs and from Lemon Grove connection to the TTP Headworks, the golf course reclaimed pipeline alignment and Entrance Road irrigation area, Horse Lake pump station and power lines, horse pasture pipeline alignment, STP 2 power poles, the Stuart Mesa pipeline segments and pump station, and the reclaimed water supply pipeline alignment to Mainside. Impacts to CAGN occupied CSS and D-CSS would be minimized to the maximum extent possible. The majority of the CSS and D-CSS

within the proposed project areas would be temporarily impacted, including 6.89 acres (4.45 ha) of CSS, 1.14 acres (0.46 ha) of CSS(P), 4.94 acres (2.00 ha) of D-CSS and 2.47 acres (1.00 ha) of D-CSS(P). Potential permanent impacts for the construction of the lemon grove PS, Stuart Mesa PS, and golf course irrigation area to CSS could be 5.50 acres (2.22 ha) of high quality habitat and 0.50 acre (0.20 ha) of D-CSS. The lemon grove PS is located within D-CSS vegetation, which is significantly disturbed due to annual lemon grove pond maintenance.

If occupied CAGN habitat is present within 500 ft (152 m) of proposed construction areas, a biological monitor would be present during construction and construction would take place outside the breeding season to the maximum extent practicable. The CAGN breeding season is 15 February to 15 August (USFWS 2004). If seasonal avoidance is not feasible then SCMs would be implemented. Based on implementation of the SCMs presented in section 2.3, significant impacts to CAGN would not occur. Thus, CAGN is not likely to be adversely affected.

Least Bell's Vireo

Impacts to LBV occupied riparian habitat would be minimized to the maximum extent possible. If occupied LBV habitat is present within 500ft (152 m) of proposed construction areas, a biological monitor would be present during construction and construction would take place outside the breeding season to the maximum extent practicable. The LBV breeding season is 15 March to 31 August. If seasonal avoidance is not feasible then SCMs would be implemented. Based on implementation of the SCMs presented in section 2.3, significant impacts to LBV would not occur. Thus, LBV is not likely to be adversely affected.

Southwestern Willow Flycatcher

Impacts to SWF occupied riparian habitat would be minimized to the maximum extent possible. If occupied SWF habitat is present within 500 ft (152 m) of proposed construction areas, a biological monitor would be present during construction and construction would take place outside the breeding season to the maximum extent practicable. The SWF breeding season is 15 March to 31 August. If seasonal avoidance is not feasible then SCMs would be implemented. Based on implementation of the SCMs presented in section 2.3, significant impacts to SWF would not occur. Thus, SWF is not likely to be adversely affected.

Other Special Status Species

As described in section 3.2.2.3, several California Department of Fish and Game wildlife species of special concern have the potential to occur in the proposed project areas. Because construction disturbance would be temporary, mostly confined to disturbed areas, with only small areas of native habitat permanently altered, no significant impact to populations or the overall availability of habitat for these species would occur.

3.2.4 Mitigation Measures

Implementation of the Proposed Action and associated SCMs would not result in significant impacts to biological resources; therefore, no mitigation measures would be required.

3.2.5 No Action Alternative

Under the No Action Alternative, the construction of the P-110 pipelines and associated facilities would not occur; the USMC would not implement those additions and modifications to the MCB Camp Pendleton wastewater conveyance pipeline system and associated facilities discussed in this Supplemental

EA. Therefore, existing conditions (as described in section 3.2.2) would remain unchanged and impacts to biological resources would not occur.

3.3 CULTURAL RESOURCES

3.3.1 Definition of Resource

The NHPA establishes guidelines for the protection, enhancement, and preservation of any property that possesses significant archaeological, architectural, historical, or cultural characteristics. Section 106 of the NHPA mandates that federal agencies take into account the effect of their undertakings on properties included in or eligible for inclusion in the National Register of Historic Places (NRHP). Section 110 mandates that federal agencies establish a program to locate, inventory, and nominate all their properties that might qualify for inclusion on the NRHP.

3.3.2 Existing Conditions

Over 85 years of archaeological investigations along the southern California coast have yielded a long sequence of prehistoric occupation (Moratto 1984). This occupation is well documented both north and south of MCB Camp Pendleton, and extends from the early Holocene into the ethnohistoric period (e.g., Hines and Rivers 1991; Meighan 1954; True 1958; Vanderpot et al. 1993; Warren 1964). Concerning MCB Camp Pendleton, there was little systematic research until the 1960s.

In over 50 years of archaeological investigations on MCB Camp Pendleton, 82 surveys have recorded approximately 600 archaeological sites of which more than 150 have been tested. Cultural sites spanning prehistoric, ethnohistoric and historic time periods have been documented within boundaries of the Base. Archaeological study on MCB Camp Pendleton has varied from adequate investigations to inadequate projects based on generally accepted standards of today (Byrd 1996b; Reddy 1998a, 1998b). Despite some limitations, the archaeological database of the Base is evolving into a resource that can be utilized to address issues related to regional settlement subsistence systems and human adaptation.

The P-110 project areas were surveyed by ASM Affiliates in November 2006. The five areas surveyed included the pipeline alignment to Stuart Mesa Road; the golf course reclaimed pipeline alignment and entrance road irrigation area; the horse pasture pipeline alignment with STP-2 power pole locations and wastewater pipeline replacement; the Stuart Mesa housing re-use line, pump station, holding tank; and the pipeline alignment from SRTTP to the bluffs. For each study area, the Area of Potential Effect (APE) and a 100 ft (30 m) buffer zone was surveyed through a full coverage survey done at 50 ft (15 m) transect intervals. A concentrated effort was made to examine subsurface exposures such as animal burrows, eroded areas, drainages, road cuts, and areas disturbed by military activity for indications of buried cultural deposits. In addition to the survey effort, testing was also performed for a single site located within the APE; testing results are described below.

One archeological site (SDI-13929) is recorded within APE. However, due to the fact that the site location was easy to identify, it is possible that natural and introduced elements observed at the location were mistaken for archeological materials or, based on extensive site disturbance, surface manifestations noted in the original recordation of the site were destroyed. Testing of the site with shovel test pits was performed on 28 November 2006 and did not produce any ecofacts or artifacts, suggesting that subsurface and surface components may have been completely destroyed by modern activity, if in fact such resources ever existed at the location. Therefore, the site is not considered to be NRHP-eligible.

3.3.3 Environmental Consequences

3.3.3.1 Proposed Action

No NRHP eligible cultural resources would be impacted by implementation of the P-110 project; therefore, significant impacts to cultural resources would not occur.

3.3.4 Mitigation Measures

Implementation of the Proposed Action would not result in significant impacts to cultural resources; therefore, no mitigation measures would be required.

3.3.5 No Action Alternative

Under the No Action Alternative, construction of the P-110 pipelines and associated facilities would not occur; the USMC would not implement those additions and modifications to the MCB Camp Pendleton wastewater conveyance pipeline system and associated facilities discussed in this Supplemental EA. Therefore, existing conditions (as described in section 3.3.2) would remain unchanged and impacts to cultural resources would not occur.

3.4 AIR QUALITY

3.4.1 Definition of Resource

Air quality in a given location is defined by pollutant concentrations in the atmosphere and is generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). One aspect of significance is a pollutant's concentration in comparison to a national and/or state ambient air quality standard. These standards represent the maximum allowable atmospheric concentrations that may occur and still protect public health and welfare with a reasonable margin of safety. The national standards, established by the U.S. Environmental Protection Agency (USEPA), are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS represent maximum acceptable concentrations that generally may not be exceeded more than once per year, except the annual standards, which may never be exceeded. State standards, established by the California Air Resources Board (CARB), are termed the California Ambient Air Quality Standards (CAAQS). The CAAQS are at least as restrictive as the NAAQS and include pollutants for which national standards do not exist. The state and national ambient air quality standards are shown in Table 3.4-1.

The main pollutants of concern considered in this air quality analysis include volatile organic compounds (VOCs), ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter less than or equal to 10 microns in diameter (PM_{10}), and particulate matter less than or equal to 2.5 microns in diameter ($\text{PM}_{2.5}$). Although VOCs or NO_x (other than nitrogen dioxide) have no established ambient standards, they are important as precursors to O_3 formation. Ozone is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. In the presence of solar radiation, the maximum effect of VOCs and NO_x emissions on O_3 levels usually occurs several hours after they are emitted and many miles from the source.

Table 3.4-1. California and National Ambient Air Quality Standards

Pollutant	Average Time	California Standards		National Standards		
		Concentration	Measurement Method	Primary	Secondary	Measurement Method
O ₃	1 hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³)	0.12 ppm (235 µg/m ³)	Ethylene Chemiluminescence
	8 hour	0.070 ppm (137 µg/m ³)		0.08 ppm (157 µg/m ³)	0.08 ppm (157 µg/m ³)	
CO	8 hours	9.0 ppm (10 mg/m ³) ⁽¹⁾	Non-Dispersive Infrared Spectroscopy	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Spectroscopy
	1 hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
Nitrogen Dioxide (NO ₂)	Annual Average	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)	Gas Phase Chemiluminescence
	1 hour	0.25 ppm (470 µg/m ³)		--	--	
Sulfur Dioxide (SO ₂)	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 µg/m ³)	--	Pararosaniline
	24 hours	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	--	
	3 hours	--		--	0.5 ppm (1300 µg/m ³)	
	1 hour	0.25 ppm (655 µg/m ³)		--	--	
PM ₁₀	24 hours	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	150 µg/m ³	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		50 µg/m ³	50 µg/m ³	
PM _{2.5}	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³	15 µg/m ³	Inertial Separation and Gravimetric Analysis
	24 hours	--		65 µg/m ³	65 µg/m ³	
Sulfates	24 hours	25 µg/m ³	Ion Chromatography	--	--	--
Lead	30-day Average	1.5 µg/m ³	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 µg/m ³	1.5 µg/m ³	
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride	24 hours	0.010 ppm (26 µg/m ³)	Gas Chromatography	--	--	--

Source: CARB 2006a (This standard was approved by the CARB on April 28, 2005 and became effective in May 2006)

Notes: ⁽¹⁾mg/m³= milligrams per cubic meter

Identifying the region of influence (ROI) for air quality requires knowledge of the types of pollutants being emitted, pollutant emission rates, topography, and meteorological conditions. The ROI for inert pollutants (pollutants other than O₃ and its precursors) is generally limited to a few miles downwind from a source. The ROI for photochemical pollutants, such as O₃, can extend much farther downwind than for inert pollutants. Therefore, the ROI for air quality analysis is defined as the entire San Diego Air Basin (SDAB), which encompasses all of San Diego County.

3.4.2 Regulatory Setting

The Federal CAA Extension of 1970 and its subsequent amendments establish air quality regulations and the NAAQS and delegate the enforcement of these standards to the states. The CARB enforces air pollution regulations and sets guidelines to attain and maintain the NAAQS and CAAQS within the state of California. These guidelines are found in the California State Implementation Plan (SIP). The CAA Amendments of 1990 established new federal nonattainment classifications, new emission control requirements, and new compliance dates for nonattainment areas.

The requirements and compliance dates are based on the severity of the nonattainment classification. The following section provides a summary of the federal, state, and local air quality rules and regulations that apply to the Proposed Action.

3.4.2.1 Federal Requirements

Section 176(c) of the 1990 CAA Amendments contains the General Conformity Rule (40 CFR 51.850-860 and 40 CFR 93.150-160). The General Conformity Rule requires any federal agency responsible for an action in a nonattainment or maintenance area to determine that the action conforms to the applicable SIP. This means that federally supported or funded activities will not (1) cause or contribute to any new air quality standard violation, (2) increase the frequency or severity of any existing standard violation, or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone. The rule allows for approximately 30 exemptions that are assumed to conform to an applicable SIP. Emissions of attainment pollutants are exempt from conformity analyses. Actions would conform to a SIP if their annual direct and indirect emissions remain less than the applicable *de minimis* thresholds. Formal conformity determinations are required for any actions that exceed these thresholds. However, if the total emissions of a pollutant from a federal action exceed 10 percent of a nonattainment area's emissions inventory of that pollutant, the action is defined as a regionally significant action and it would also require a conformity determination. Based on the present attainment status of the SDAB, the Proposed Action would conform to the most recent USEPA-approved SIP if its annual construction or operational emissions do not exceed 100 tons of NO_x or VOCs.

In September 1997, the USEPA promulgated 8-hour O₃ and 24-hour and annual PM_{2.5} national standards (particulate matter less than 2.5 microns in diameter). A new planning process to monitor and evaluate emission control measures for these pollutants was instituted. The SDAB has been designated a basic nonattainment area for the 8-hour O₃ standard. The SDAB was originally recommended as a nonattainment area for the PM_{2.5} standard; however, recent monitoring data and a reevaluation of the existing data indicate that the area may be attaining the PM_{2.5} standard. The SDAB's designation has not been finalized.

3.4.2.2 State Requirements

The California CAA of 1988, as amended in 1992, outlines a program to attain the CAAQS for O₃, NO₂, SO₂, particulate matter, and CO by the earliest practical date. Since the CAAQS are more stringent than the NAAQS, emissions reductions beyond what would be required to show attainment for the NAAQS

would be needed to show compliance with the CAAQS. CARB delegates the authority to regulate stationary source emissions to local air quality management districts. The CARB requires these agencies to develop their own strategies for achieving compliance with the NAAQS and CAAQS, but maintains regulatory authority over these strategies, as well as all mobile source emissions throughout the state. As discussed below, the San Diego County Air Pollution Control District (SDCAPCD) is the local agency responsible for enforcement of air quality regulations in the project region.

3.4.2.3 Local Regulations

The SDCAPCD is responsible for regulating stationary sources of air emissions in the SDAB. The SDCAPCD Rules and Regulations (SDCAPCD 2006) establish emission limitations and control requirements for stationary sources, based on their source type and magnitude.

The 1994 *O₃ SIP Revision* for the SDAB is a comprehensive plan that was intended to bring the SDAB into compliance with the national *O₃* standard by the 1999 mandate for serious *O₃* nonattainment areas. The 1994 SIP includes on- and off-road motor vehicle emission controls proposed by the CARB and stationary source emission controls that have been adopted by the SDCAPCD to demonstrate attainment of the *O₃* standard. The USEPA approved this plan in January 1997. As noted below, the SDAB attained the national 1-hour *O₃* standard in 2001. The SDCAPCD has adopted a maintenance plan that was approved by the USEPA to maintain attainment for the 1-hour national *O₃* standard. This maintenance plan contains contingency measures that the SDCAPCD will implement in the event that the region falls out of attainment of the national 1-hour *O₃* standard. The SDAB was designated a basic nonattainment area for the 8-hour national *O₃* standard. The planning process for implementation and attainment of the 8-hour national *O₃* standard is currently ongoing.

The 2004 Triennial Regional Air Quality Strategy (RAQS) Revision is the most recent plan to bring the SDAB into compliance with the CAAQS. This plan includes all feasible control measures that can be implemented for the reduction of *O₃* precursor emissions. To be consistent with the RAQS, a project must conform to emission growth factors outlined in this plan. Control measures for stationary sources proposed in the RAQS and adopted by the SDCAPCD are incorporated into the SDCAPCD Rules and Regulations.

3.4.3 Existing Conditions

3.4.3.1 Climate and Meteorology

The climate of the project region is classified as Mediterranean, characterized by dry summers and wet winters. The major influences on the regional climate are the Eastern Pacific high-pressure system, topography, and the moderating effects of the Pacific Ocean. Seasonal variations in the position and strength of the high-pressure system are a key factor in area weather changes.

The Eastern Pacific High is a persistent anticyclone that attains its greatest strength and most northerly position during summer, when it is centered west of northern California. In this position, the High effectively shelters southern California from the effects of polar storm systems. As winter approaches, the Eastern Pacific High weakens and shifts to the south, allowing polar storm systems to pass through the region. Subsiding air associated with the High warms the upper levels of the atmosphere and produces an elevated temperature inversion (temperature increases with height) along the west coast. The base of this temperature inversion is generally from 1,000 to 3,000 ft (305 to 914 m) above MSL during the summer. The subsidence inversion acts like a lid on the lower atmosphere and traps air pollutants near the surface of the earth by limiting vertical dispersion. Mountain ranges in eastern San Diego County constrain the horizontal movement of air and also inhibit the ventilation of air pollutants out of

the region. These two factors, combined with the emission sources of over three million people, help to create the high pollutant conditions sometimes experienced in San Diego County.

Concurrent with the presence of the Eastern Pacific High west of California, a thermal low pressure system persists in the interior desert region due to intense insolation. The resulting pressure gradient between these two systems produces a southwest to west onshore air flow at MCB Camp Pendleton for most of the year. Sea breezes usually occur during the daytime and disperse air pollutants toward the interior regions. During the evening hours and colder months of the year, sea breezes are often replaced by land breezes that blow in the opposite direction towards the offshore areas. These weak offshore flows may continue until daytime heating reverses the flow back onshore.

During the colder months, the Eastern Pacific High can combine with high pressure over the continent to produce extended periods of light winds and low-level inversion conditions in the region. These atmospheric conditions can produce adverse air quality. Excessive build-up of high pressure over the continent can produce a "Santa Ana" condition, characterized by warm, dry, northeast winds. Santa Ana winds help to ventilate the air basin of locally generated emissions. However, Santa Ana conditions can also transport air pollutants from the Los Angeles metropolitan area into the project region. When stagnant atmospheric conditions occur during a weak Santa Ana, local emissions combined with pollutants transported from the Los Angeles area can lead to significant O₃ impacts in the project region.

Marine air trapped below the base of the subsidence inversion is often condensed into fog and stratus clouds by the cool Pacific Ocean. This is a typical weather condition of coastal San Diego County during the warmer months of the year. Marine stratus usually forms offshore and moves into the coastal plains and valleys during the evening hour. When the land heats up the following morning, the clouds burn off to the immediate coastline and reform the following evening.

3.4.3.2 Regional and Local Air Pollutant Sources

An emission rate represents the mass of a pollutant released into the atmosphere by a given source over a specified period of time. Emission rates can vary considerably depending on type of source, time of day, and schedule of operation. The SDCAPCD periodically updates emissions for the entire SDAB for purposes of forecasting future emissions, analyzing emission control measures, and for use in regional air quality modeling. The largest regional sources of air emissions are on-road vehicles. The year 2005 inventory determined that on-road vehicles emitted 32 percent of the VOCs, 55 percent of the NO_x, and 65 percent of the CO emissions within the SDAB (CARB 2006b). Other large sources of VOCs are use of surface coatings and solvents. Combustion sources produce both primary fine particulate matter and fine particulate precursor pollutants, such as NO_x, which react in the atmosphere to produce secondary fine particulates. Coarser particles mainly occur from soil-disturbing activities, such as construction, mining, agriculture, and vehicular road dust.

3.4.3.3 Baseline Air Quality

Representative air quality data for MCB Camp Pendleton for the period 2002-2005 are shown in Table 3.4-2. The USEPA designates all areas of the U.S. as having air quality better than or equal to (attainment) or worse than (nonattainment) the NAAQS. The criteria for nonattainment designation varies by pollutant: (1) an area is in nonattainment for O₃ if its NAAQS has been exceeded more than three discontinuous times in three years and (2) an area is generally in nonattainment for any other pollutant if its NAAQS has been exceeded more than once per year.

Table 3.4-2. Representative Air Quality Data for MCB Camp Pendleton (2002-2005)

Air Quality Indicator	2002	2003	2004	2005
O₃⁽¹⁾				
Peak 1-hour value (ppm)	0.09	0.10	0.11	0.09
Days above federal standard (0.12 ppm) ⁽²⁾	0	0	0	0
Days above state standard (0.09 ppm) ⁽³⁾	0	4	4	0
Peak 8-hour value (ppm)	0.073	0.084	0.095	0.074
Days above federal standard (0.08 ppm) ⁽²⁾	0	0	2	0
CO⁽⁴⁾				
Peak 8-hour value (ppm)	3.5	3.9	4.0	4.7
Days above federal standard (9 ppm)	0	0	0	0
Days above state standard (9.0 ppm)	0	0	0	0
PM₁₀⁽⁴⁾				
Peak 24-hour value (µg/m ³)	85	139	68	76
Days above federal standard (150 µg/m ³)	0	0	0	0
Days above state standard (50 µg/m ³) ⁽³⁾	7	11	9	1
Annual Average value (ppm)	34.8	37.6	33.2	21.2
PM_{2.5}⁽⁴⁾				
Peak 24-hour value (µg/m ³)	46.9	170.1	42.9	32.3
Days above federal standard (65 µg/m ³)	0	2	0	0
Annual Average value (ppm)	15.5	15.5	13.8	NA
SO₂⁽⁴⁾				
Peak 24-hour value (ppm)	0.007	0.008	0.008	0.007
Days above federal standard (0.14 ppm)	0	0	0	0
Days above state standard (0.04 ppm)	0	0	0	0
Annual Average value (ppm)	0.003	0.005	0.004	0.002
NO₂⁽¹⁾				
Peak 1-hour value (ppm)	0.11	0.095	0.099	0.077
Days above state standard (0.25 ppm)	0	0	0	0
Annual Average value (ppm)	0.013	0.012	0.012	0.012

Source: CARB 2006c.

Notes:

⁽¹⁾ Data from the MCB Camp Pendleton Monitoring Station.⁽²⁾ SDAB is a maintenance area for the 1-hour federal O₃ standard and a basic nonattainment area for the 8-hour federal O₃ standard.⁽³⁾ SDAB is in nonattainment for the state PM₁₀, PM_{2.5}, and 1hr O₃ standards.⁽⁴⁾ Data from the San Diego (12th Avenue) Monitoring Station.

Former nonattainment areas that have attained the NAAQS are designated as maintenance areas. The SDCAPCD submitted a maintenance plan to the USEPA in December 2002 requesting re-designation to attainment for O₃. Presently, the SDAB is in attainment of the NAAQS for all pollutants, and was redesignated as in attainment of the NAAQS for O₃ effective 28 July 2003 (Federal Register 2003). The SDAB is now considered a maintenance area for O₃. The western portion of the SDAB (the portion of the County generally west of the interior desert region) was historically in nonattainment of the NAAQS for CO. Due to a reduction in emissions caused by national emission standards for new vehicles and a state vehicle emissions testing program, the region has attained the CO standards since 1991. As a result, the region was re-designated to attainment of the CO NAAQS by the USEPA in June 1998 and it is now considered a maintenance area for CO.

3.4.3.4 MCB Camp Pendleton Emissions

Emission sources associated with the existing use of MCB Camp Pendleton include civilian and military personal vehicles, commercial and military vehicles, aircraft engines, tactical support equipment, small stationary sources, and ongoing construction activities.

3.4.4 Environmental Consequences

3.4.4.1 Proposed Action

Estimated emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations. Impacts would occur if the Proposed Action would directly or indirectly produce emissions that would be the primary cause of, or would significantly contribute to, a violation of state or federal ambient air quality standards. Emission thresholds associated with CAA conformity requirements are another means of assessing the significance of air quality impacts. A formal conformity determination is required for federal actions occurring in nonattainment or maintenance areas when the total direct and indirect stationary and mobile source emissions of nonattainment pollutants or their precursors exceed thresholds or *de minimis* values.

Operational Emissions

The new pump stations would be run on electrical power. In the event of a power outage backup power would be provided by diesel generators. Emissions from the Proposed Action's operational activities (i.e., backup generator use) would essentially be the same as emissions associated with existing conditions; therefore only emissions associated with construction activities have been estimated.

Construction Emissions

Total emissions resulting from proposed construction activities have been estimated using project design specifications presented in Chapter 2 along with general air quality assumptions. The U.S. Air Force *Air Conformity Applicability Model* (ACAM) was used for estimating construction emissions (United States Air Force [USAF] 2004) and accounts for fugitive dust and vehicle exhaust emissions from construction vehicles and equipment (Table 3.4-3). Emissions were estimated based upon the total square footage of disturbance and paved areas associated with the Proposed Action. Construction vehicles used during proposed construction activities would consist of a mixture of loaders, trucks, backhoes, excavators, water trucks, and other vehicles and equipment typically associated with construction activities.

Estimated emissions as a result of implementation of the Proposed Action would be below *de minimis* levels (Table 3.4-3); therefore, a conformity analysis would not be necessary. Fugitive dust (PM₁₀ and PM_{2.5}) emissions would be minimized by incorporating dust control measures (e.g., frequently applying water on surface grading areas). Therefore, implementation of the P-110 components at MCB Camp Pendleton would not result in significant impacts to air quality within the ROI.

Fugitive dust generated from construction activities would temporarily impact local air quality. However, fugitive dust generated by proposed construction activities would be temporary and short-term; no long-term increases in fugitive dust would occur. Additionally, increases in PM₁₀ and PM_{2.5} would be moderated through BMPs, including watering of exposed soils, soil stockpiling, and soil stabilization, thereby limiting the total quantity of fugitive dust emitted during the construction period.

Table 3.4-3. Estimated Emissions Resulting from Implementation of the Proposed Action at MCB Camp Pendleton

<i>Component</i>	<i>Emissions (tons)</i>					
	<i>VOCs</i> ¹	<i>NO_x</i> ¹	<i>CO</i> ²	<i>SO_x</i> ²	<i>PM</i> ₁₀ ^{2,3}	<i>PM</i> _{2.5} ^{2,3}
Construction Emissions (tons per year)	1	8.5	9.5	1	33.5	<<1
<i>de minimis</i> threshold (tons per year)	100	100	100	100	100	100
Exceeds <i>de minimis</i> threshold?	No	No	No	No	No	No

Notes:

- (1) SDAB is currently a maintenance area for the 1-hour federal O₃ standard and a basic nonattainment area for the 8-hour federal O₃ standard; VOCs and NO_x are precursors to the formation of O₃.
- (2) SDAB is in attainment of the federal and state CO, SO_x standards and the federal PM₁₀ and PM_{2.5} standard.
- (3) SDAB is in nonattainment of the state PM₁₀, PM_{2.5}, and 1hr ozone standard.

3.4.4.2 Conformity Applicability Analysis

The estimated construction emissions associated with the Proposed Action would be below the *de minimis* threshold levels for conformity. Therefore, the Proposed Action would conform to the SDAB SIP and would not trigger a conformity determination under Section 176(c) of the CAA. The USMC has prepared a Record of Non-Applicability for CAA conformity (refer to Appendix B).

3.4.5 Mitigation Measures

Implementation of the Proposed Action would not result in significant air quality impacts; therefore, no mitigation measures would be required.

3.4.6 No Action Alternative

Under the No Action Alternative, construction of the P-110 pipelines and associated facilities would not occur; the USMC would not implement those additions and modifications to the MCB Camp Pendleton wastewater conveyance pipeline system and associated facilities discussed in this Supplemental EA. Therefore, existing conditions (as described in section 3.4.3) would remain unchanged and impacts to air quality would not occur.

3.5 UTILITIES

3.5.1 Definition of Resource

This section discusses the utilities available on and in the vicinity of the locations identified in Chapter 2 to accommodate the P-110 components, including the potable water supply systems, solid waste collection and disposal, electrical power, natural gas, wastewater and stormwater.

3.5.2 Existing Conditions

3.5.2.1 Potable Water Supply

Unlike most other communities in Southern California, MCB Camp Pendleton derives over 95% of its water supply from existing groundwater resources within its boundaries via a system of wells, water mains, booster pumps, and storage reservoirs located in the Lower Santa Margarita, Las Pulgas, San Onofre, and San Mateo groundwater basins (U.S. Navy 1998). This water system has a total capacity of

21.5 million gallons (81.4 million liters) (NAVFAC SW 1996). The Santa Margarita River Basin supports all but one of the service areas at the south end of MCB Camp Pendleton and supplies approximately 70% of MCB Camp Pendleton's water needs (NAVFAC SW 1996). A backup water supply is also available through two separate water lines that connect the Santa Margarita River and the Las Flores systems in the south. A second backup water supply exists for the San Mateo and San Onofre systems in the north.

3.5.2.2 Solid Waste Collection and Disposal

The solid waste produced on MCB Camp Pendleton is collected by MCB Camp Pendleton personnel and disposed of on MCB Camp Pendleton at the Las Pulgas and San Onofre landfills. MCB Camp Pendleton landfills accept all eligible biosolids and construction debris for disposal. The first phase of a five-phase expansion program was completed for both landfills in November 1999. With completion of Phase 5, the Las Pulgas landfill is not expected to reach capacity until 2183, while the San Onofre landfill is not expected to reach capacity until 2193 (MCB Camp Pendleton 2003). These estimates are based on the Las Pulgas landfill accepting 270 tons of waste per day, 5 days a week, and the San Onofre landfill accepting 50 tons of waste per day, 2 days a week (MCB Camp Pendleton 2003). A recycling program for paper, scrap metal, appliances, waste oil, solvents, rubber, canvas, and steel is currently operating on MCB Camp Pendleton and is managed by the AC/S ES through the Defense Reutilization and Marketing Office.

3.5.2.3 Electricity

The electrical power provided to MCB Camp Pendleton is purchased from San Diego Gas and Electric (SDG&E). Power is distributed to MCB Camp Pendleton via two major tower lines, which run from Oceanside north to the San Mateo Substation and from Fallbrook onto MCB Camp Pendleton. The MCB Camp Pendleton electrical system consists of mostly aboveground lines, with a limited number of underground lines that serve certain housing areas. The main MCB Camp Pendleton substation, the Haybarn Substation, is located near the junction of Basilone Road and Vandegrift Blvd. This substation is supplied 69 kilovolts (kV) from a branch of the Oceanside line and 69kV from the Fallbrook alternative feed line.

Several SDG&E high voltage regional power lines (approximately 138 kV) also traverse MCB Camp Pendleton. SDG&E has obtained easements from MCB Camp Pendleton for these transmission lines and others throughout MCB Camp Pendleton (USMC 1997). In addition, SDG&E has acquired an easement of a 200-ft (61-m) right-of-way and installed power lines adjacent to the north and northeastern MCBP boundaries.

3.5.2.4 Natural Gas and Petroleum

Three regional pipelines run through MCB Camp Pendleton. These transport lines move gas and petroleum products from the refineries in Long Beach to the distribution center in Mission Valley, San Diego. The Southern California Gas Company pipeline is approximately 12 in (30 cm) in diameter and runs through MCB Camp Pendleton along the coastline following the railroad easement. The other two pipelines, 16 in (41 cm) and 10 in (25 cm) in diameter, are operated by Kinder Morgan (also known as San Diego Pipeline Company) for the delivery of petroleum product. One of the two petroleum pipelines is currently not in use, but it is not considered abandoned. The pipelines run parallel to each other entering MCB Camp Pendleton in the Talega Area, following Basilone Road, and exiting MCB Camp Pendleton southwest of Chappo (USMC 1997). MCB Camp Pendleton purchases liquefied natural gas from SDG&E and the gas is distributed throughout MCB Camp Pendleton via various gas mains.

Liquefied petroleum gas and heating fuel oil are purchased from sources in the San Diego area and obtained from tanker trucks, which deliver to holding facilities throughout MCB Camp Pendleton (NAVFAC SW 1996).

3.5.2.5 Wastewater

MCB Camp Pendleton collects, performs secondary treatment of, and disposes treated wastewater through a system of STP, pump stations, and conveyance lines. Wastewater currently undergoes secondary treatment and secondary treated effluent is used for limited irrigation and landscaping purposes. The Base's wastewater system is in the process of being upgraded to provide tertiary treatment capabilities and MCB Camp Pendleton currently performs advanced sewage treatment at STP 9. The tertiary treated water would continue to be used for irrigation, landscaping, and groundwater recharge. Existing STPs have been closed or are in the process of being closed and tertiary treatment facilities are currently under construction. In addition to the uses discussed above, effluent is currently primarily discharged to the Pacific Ocean via an ocean outfall system (NAVFAC SW 2004a).

3.5.2.6 Stormwater

MCB Camp Pendleton operates under a general stormwater permit issued by the State Water Resources Control Board (SWRCB). Any construction projects involving ground disturbance greater than 1.0 acre (0.4 ha) require a SWPPP in accordance with SWRCB regulations.

3.5.3 Environmental Consequences

There are no federal or state laws or regulations that are applicable to utilities. Impacts to utilities are assessed according to capacity of available infrastructure and services. An impact to utilities would occur if an action would stress or exceed existing utility capacities.

3.5.3.1 Proposed Action

Potable Water Supply

MCB Camp Pendleton's potable water supply would not be impacted since nonpotable water would be provided for grading activities (such as dust control and soil compaction) by the construction contractor. In addition, no potable water would be required for operation of the wastewater conveyance pipelines and associated facilities. Implementation of the Proposed Action would result in a decrease in the amount of potable water extracted from existing wells since some areas currently being irrigated with potable water would be irrigated with reclaimed water, resulting in less demand for potable water. Therefore, beneficial impacts to the potable water supply would occur.

Solid Waste Collection and Disposal

Solid waste (i.e., construction debris) generated by the construction of the wastewater conveyance pipelines and associated facilities would be recycled or disposed of properly by the contractor. Solid waste would continue to be disposed at either the San Onofre or Las Pulgas landfills, which are not expected to reach their capacities until the years 2183 and 2193, respectively. Therefore, construction of the wastewater conveyance pipelines and associated facilities would not result in a significant impact to solid waste collection and disposal services.

Although the impacts are not significant, as part of the continuing commitment of the Marine Corps to waste minimization, the contractor for project construction would be required to participate in MCB Camp Pendleton's reuse and recycling programs for solid waste, and to make the fullest use practicable of recovered construction materials.

Electricity

Implementation of the Proposed Action would require the use of portable, fuel-powered generators to supply electricity for construction activities. Proposed construction activities would not require the use of MCB Camp Pendleton's electrical system. Long-term operation of the wastewater conveyance pipelines and associated facilities would not result in a significant increase in electrical demands at MCB Camp Pendleton since the electrical use would be shifted from the old facilities to the new ones and the level of use for electricity to support the SRTTP and associated facilities would generally be the same. Therefore, no significant impact on MCB Camp Pendleton's electrical system would occur as a result of implementation of the Proposed Action.

Natural Gas and Petroleum

Construction and operation of the wastewater conveyance pipelines and associated facilities would not require the use of natural gas. Therefore, no significant impact on the availability of natural gas sources would occur as a result of implementation of the Proposed Action.

Wastewater

Wastewater at the SRTTP would be collected, treated, and disposed via the proposed wastewater conveyance pipelines and associated facilities. During construction of the conveyance system, wastewater would continue to be collected and properly disposed of via the existing wastewater system and no disruption to flows would occur. Therefore, construction and operation of the new wastewater conveyance pipelines and facilities would result in a beneficial impact to wastewater utilities.

Stormwater

Construction activities for the proposed wastewater conveyance pipelines and associated facilities would disturb greater than 1.0 acre (0.4 ha); consequently, construction activities would be conducted under the State General Construction Permit (obtained from the RWQCB) and a site-specific SWPPP for the project. The SWPPP includes BMPs that would minimize stormwater discharge intensities and erosion. Therefore, no significant stormwater-related impacts would occur.

3.5.4 Mitigation Measures

Implementation of the Proposed Action would not result in a significant impact to utilities; therefore, no mitigation measures would be required.

3.5.5 No Action Alternative

Under the No Action Alternative, construction of the P-110 pipelines and associated facilities would not occur; the USMC would not implement those additions and modifications to the MCB Camp Pendleton wastewater conveyance pipeline system and associated facilities discussed in this Supplemental EA. Therefore, existing conditions (as described in section 3.5.2) would remain unchanged and impacts to utilities would not occur. However, compliance with regulatory requirements would not be achieved and the increase in reuse of reclaimed water would not be realized.

CHAPTER 4

CUMULATIVE IMPACTS

According to CEQ regulations, the analysis of cumulative impacts in an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7).

4.1 DEFINITION OF CUMULATIVE IMPACTS

Cumulative impacts may occur when there is a relationship between a proposed action and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. Actions overlapping, or in close proximity to, the Proposed Action can have more potential for cumulative impacts on "shared resources" than actions that may be geographically separated. Similarly, actions that coincide temporally would tend to offer a higher potential for cumulative impacts. To the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Action outlined in this Supplemental EA, these actions are included in the cumulative analysis.

4.2 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

This Supplemental EA applies a stepped approach to provide decision-makers with not only the cumulative impacts of the Proposed Action, but also the incremental contribution of past, present, and reasonably foreseeable actions. Past, present, and reasonably foreseeable actions relevant to the Proposed Action are:

4.2.1 Base-wide Fuel Optimization Program

MCB Camp Pendleton proposes to construct new fuel stations or modernize or replace existing fuel stations, resulting in an optimized fuel distribution system consisting of a maximum of six COCO fuel stations (two master service stations and four satellite service stations). The six fuel stations would be strategically located throughout the MCB Camp Pendleton within six areas: 12 or 14, 21, 22, 41, 43, and 52 Areas. No significant impacts were identified in an EA prepared by MCB Camp Pendleton in 2005. The FONSI was signed on 9 December 2005.

4.2.2 North County Transit District (NCTD) Santa Margarita River Bridge Replacement and Second Track Project

The Proposed Action for this project would include the replacement of the existing single-track Santa Margarita River Railroad Bridge with a new two-track bridge, construction of a 0.8-mile (1.3-km) second rail track, and an upgrade and realignment of the existing Fallbrook Junction Passing Track (1.7 miles [2.7 km]) for higher speed. Completion of the new double-track segment portion of the project would connect the Stuart Mesa Passing Track with the Fallbrook Junction Passing Track to provide a 4.5-mile (7.2 km) segment of continuous double-track with maximum speeds between 75 and 90 miles per hour (mph) (121 and 145 km per hour). An EA is being prepared to analyze potential environmental impacts of the project.

4.2.3 Public-Private Venture (PPV) Housing Projects

The military housing at Del Mar and Wire Mountain would be repaired and upgraded through a PPV project. The Del Mar PPV action qualifies for a Categorical Exclusion (CATEX) because it involves routine repair and maintenance of existing facilities and construction of new facilities consistent with

current land use and compliant with existing regulatory requirements and constraints. No expansion of the housing area would occur. The CATEX was signed by the MCB Camp Pendleton Commanding General on September 23, 2003. The Wire Mountain PPV involves the demolition of all the existing housing units and construction of new units, all built within the existing development footprint. The action has been completed for half of the project and the remaining half is currently underway. The Wire Mountain PPV action was analyzed in an EA finalized in November 2002 and identified no significant environmental impacts. The FONSI was signed on 4 December 2002.

A Site Feasibility Study was conducted in 2005 to evaluate the suitability for development of three sites for Military Family Housing that would be developed under a PPV. The proposed projects would involve demolition and construction of new housing in South Mesa and the San Onofre Mobile Home Park. A Biological Technical Report is also being prepared to determine indirect impacts to vegetation and wildlife resources in adjacent areas. Preparation of the NEPA documentation has recently been initiated.

4.2.4 Pacific Marine Credit Union

Preliminary planning is underway for the proposed construction of a Pacific Marine Credit Union branch on a 2.8-acre (1.1-ha) parcel off of Vandegrift Boulevard across from the MCB Camp Pendleton Commissary. The facility would consist of a two-story credit union with administrative office space, training rooms, automatic teller machine facilities, and an employee patio. An EA is being prepared to analyze potential environmental impacts of the proposed credit union and the relocation of existing electrical power lines that currently bisect the parcel.

4.2.5 Improvements Around Combat Town

MCB Camp Pendleton is proposing to construct a new defensive range that uses technologies and training methods associated with the more advanced weaponry used by the USMC. The new defensive range would be located approximately 1.4 miles (2.3 km) east of Combat Town. An access bridge and road would also be constructed which would lead to Range 314. Bridge construction would include concrete foundations and two culvert crossings. Implementation of erosion protection measures has been incorporated into project design. The project also includes repair work to "old" San Mateo Road. No significant impacts were identified in an EA prepared by MCB Camp Pendleton in 2001. The FONSI was signed on 2 May 2001.

4.2.6 Improvements to Basilone Road

Assorted road improvements are planned for Basilone Road. They include recently completed in-kind asphalt repairs within existing disturbed areas for which MCB Camp Pendleton issued a CATEX in 2000; a base-wide utility easement to Kinder Morgan Pipeline, buried adjacent to Basilone Road, for which a FONSI was signed in 1999; and the Conjunctive Use Project associated with the Santa Margarita River Utilization Strategy to address well and buried pipe improvements for which eventual effects are not "reasonably foreseeable" and that an EIR/EIS is in progress to evaluate. Additionally, MCP Camp Pendleton proposes to realign a segment of the road that is, based on the current configuration, considered unsafe for vehicular travel. The EA was finalized in August of 2006 and identified no significant environmental impacts. The FONSI was signed on 25 August 2006.

4.2.7 Road Improvements to Oscar 1 Training Area

The USMC proposes to repair existing dirt training roads in the Oscar 1 training area, Edson Range, MCB Camp Pendleton, including grading, road surfacing, side slope repairs and erosion protection measures. An EA is currently in preparation.

4.2.8 Assault Breacher Vehicle

Fielding of the Assault Breacher Vehicle (ABV) at MCB Camp Pendleton will occur in fiscal years (FY) 06 and 07. Facilities in the 62 Area will be constructed/modified and ABV training exercises will be conducted in the Papa Three area and Drop Zone Case Springs as well as Ranges 409, 600, and 800. No significant impacts were identified as a result of an EA prepared by MCB Camp Pendleton in 2005. The FONSI was signed on 16 January 2006.

4.2.9 Hydrogen Fueling Station

An EA was prepared to analyze potential environmental impacts associated with the proposed siting and operation of a compressed hydrogen fueling station at MCB Camp Pendleton. The DON proposes to use this fueling station to demonstrate and validate compressed hydrogen fueling station technology. The Proposed Action would provide hydrogen fuel for a fuel cell vehicle demonstration project which would assess the cost, performance, emissions, and safety of hydrogen fueling equipment. The EA was finalized in September of 2005 and identified no significant environmental impacts. The FONSI was signed 22 September 2005.

4.2.10 Various Bachelor Enlisted Quarters (BEQ) Plus-ups

Several MILCON projects to provide more BEQ facilities are planned in the future in the 12/14, 21, 22, 24, 33, 41, 43, 52, 53, and 62 Areas. P-206 and P-028 are two BEQs to be constructed on previously developed sites in the 41 Area in FY07. Environmental analyses for both of these 41 Area BEQ projects resulted in a CATEX.

4.2.11 San Jacinto Street Extension and Temporary Lodging Facility

The extension of San Jacinto Street (a dead end street in the Wire Mountain Housing Complex) to an intersection with Vandegrift Boulevard at Pacific Plaza (20 Area Commissary/Exchange Complex) would increase the level of service for vehicles traveling from Wire Mountain Housing Complex to Pacific Plaza and other Base destinations to the east of the shopping complex. Additionally, the extension would provide enhanced and safer pedestrian routes to and from the shopping area for residents of the Wire Mountain Housing Complex and patrons of related community services in the housing area. A temporary lodging facility in proximity to the Staff NCO Club is also proposed. An EA is currently in preparation.

4.2.12 Light Armored Reconnaissance Battalion Facilities

MILCON Project P-025 is currently programmed for FY07 and would include construction of several small facilities for the Light Armored Reconnaissance battalion on the east end of 41 Area. This project would be contained within existing developed area and has received a CATEX.

4.2.13 Installation of Pump Station and Force Mains

MCB Camp Pendleton has completed the installation of a new pump station and force mains, involving the installation of overflow tanks and the relocation, replacement, and improvement of existing pipelines. The project allowed increased protection against sewage overflows from three existing pump stations into the Santa Margarita River. No significant impacts were identified in an EA prepared by MCB Camp Pendleton and the FONSI was signed in September 2004.

4.3 POTENTIAL CUMULATIVE IMPACTS BY ENVIRONMENTAL RESOURCE AREA

This section addresses the potential cumulative impacts of the Proposed Action in conjunction with the projects identified above. These projects represent past, present, and reasonably foreseeable actions with

the potential for resulting in cumulative impacts when considered in conjunction with potential impacts associated with construction and implementation of the P-110 project.

Biological Resources

The Proposed Action would not result in significant impacts to biological resources. Moreover, these less than significant impacts, when added to the impacts from the other listed projects on MCB Camp Pendleton, would not result in a significant cumulative impact to biological resources.

Cultural Resources

The Proposed Action would not result in significant impacts to cultural resources. Moreover, these less than significant impacts, when added to the impacts from the other listed projects on MCB Camp Pendleton, would not result in a significant cumulative impact to cultural resources.

Air Quality

The Proposed Action would conform to the SDAB SIP and would not trigger a conformity determination under Section 176(c) of the CAA and, therefore, not result in significant impacts to air quality. Moreover, these less than significant impacts, when added to the impacts from the other listed projects on MCB Camp Pendleton, would not result in a significant cumulative impact to air quality.

Utilities

The Proposed Action would not result in significant impacts to utilities. Moreover, these less than significant impacts, when added to the impacts from the other listed projects noted on MCB Camp Pendleton, would not result in a significant cumulative impact to utilities.

4.4 CONCLUSION

Cumulative impacts to the relevant environmental resource areas from the Proposed Action, in conjunction with other past, present, and reasonably foreseeable actions, would not be significant.

CHAPTER 5

OTHER CONSIDERATIONS REQUIRED BY NEPA

5.1 POSSIBLE CONFLICTS BETWEEN THE PROPOSED ACTION AND THE OBJECTIVES OF FEDERAL, STATE, LOCAL, AND REGIONAL LAND USE PLANS, POLICIES, AND CONTROLS

Implementation of the Proposed Action would comply with existing federal regulations and state, regional, and local policies and programs. The federal acts, EOs, policies, and initiatives that apply include the following: the CWA; the CAA; the federal ESA; MBTA and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*; the NHPA; EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*; and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*.

5.1.1 Clean Water Act

The Proposed Action would be conducted in accordance with the CWA, which was enacted as an amendment to the federal Water Pollution Control Act of 1972. The latter outlined the basic structure for regulating discharges of pollutants to waters of the U.S. The CWA includes programs addressing both point source and nonpoint source pollution, and empowers the states to set state-specific water quality standards and to issue permits containing effluent limitations for point source discharges. The USEPA has adopted water quality standards for certain toxic pollutants in California (the California Toxics Rule).

5.1.2 Clean Air Act

The results of the air quality analysis for the Proposed Action determined that project-related emissions would not contribute to an exceedance of NAAQS. The project conformity applicability analysis also shows that the Proposed Action would not, 1) exceed any conformity *de minimis* threshold for the SDAB, or 2) be regionally significant, as emissions from the action would be substantially less than 10 percent of any air pollutant estimated for the SDAB emissions inventory. Therefore, the Proposed Action would conform to the SIP and would not trigger a conformity determination under SDAPCD Rule 1501. As a result, the Proposed Action would comply with the requirements of the CAA, as amended.

5.1.3 Endangered Species Act

Consistent with Section 7 of the ESA, the potential effects of the Proposed Action on federally listed threatened and endangered species have been addressed in this Supplemental EA. The Proposed Action would comply with the ESA.

5.1.4 Migratory Bird Treaty Act and EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds

MCB Camp Pendleton conducts operations in compliance with the MBTA and EO 13186.

5.1.5 National Historic Preservation Act

The NHPA was passed in 1966 to provide for the protection, enhancement, and preservation of those properties that possess significant architectural, archaeological, historical, or cultural characteristics. EO 11593 of 1974 further defined the obligations of federal agencies concerning this act. Section 106 of the NHPA requires the head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally financed undertaking, prior to the expenditure of any federal funds on the undertaking, to take into account the effect of the undertaking on any district, site, building, structure, or

object that is included in or eligible for inclusion in the NRHP. There are no cultural resources, including historic districts, buildings, or objects that would be affected by the Proposed Action.

5.1.6 EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations

The purposes of EO 12898 are to: 1) focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities with the goal of achieving environmental justice; 2) foster non-discrimination in federal programs that substantially affect human health or the environment; and 3) give minority communities and low-income communities greater opportunities for public participation in, and access to public information on, matters relating to human health and the environment. The Proposed Action would not substantially affect human health or the environment. There would be no displacement of or disproportionate impact to minority and low-income populations.

5.1.7 EO 13045, Protection of Children from Environmental Health Risks and Safety Risks

Issued in 1997, EO 13045 requires each federal agency to "...make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall...ensure that its policies, programs, activities and standards address disproportionate risks to children..." The Proposed Action would not substantially affect human health or the environment and, thus, would not create disproportionate risks to children. In addition, there would be restricted access to the proposed project site during construction.

5.2 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL OF ALTERNATIVES INCLUDING THE PROPOSED ACTION AND ALL MITIGATION MEASURES BEING CONSIDERED

It is not anticipated that the Proposed Action would result in an overall increase in energy use at MCB Camp Pendleton. No increase in personnel would be required.

5.3 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF NATURAL OR FINITE RESOURCES

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and other natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Under the Proposed Action, construction would require the consumption of limited amounts of materials typically associated with construction (e.g., concrete, etc.). In addition, the use of construction vehicles at the locations would result in the consumption of additional fuel, oil, and lubricants. However, this is not considered a significant irreversible or irretrievable commitment of resources.

5.4 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF THE HUMAN ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM NATURAL RESOURCE PRODUCTIVITY

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development

option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resource to a certain use often eliminates the possibility of other uses being performed at that site.

The Proposed Action would, reversibly, dedicate land and a small amount of other resources to a particular use for the life of the project. That land and resources would not be available for other productive uses. However, these impacts are not significant. Therefore, the Proposed Action would not result in any impacts that would reduce environmental productivity, permanently narrow the range of beneficial uses of the environment, or pose long-term risks to health, safety or the general welfare of the public.

5.5 MEANS TO MITIGATE AND/OR MONITOR ADVERSE ENVIRONMENTAL IMPACTS

The Proposed Action would not result in any significant adverse environmental impacts. Therefore, no mitigation measures would be required; however, standard measures to protect biological resources, as outlined in sections 2.3 and 3.2.3 of this Supplemental EA, would be implemented. In addition, archaeological monitoring would be conducted as appropriate (e.g., in the Stuart Mesa Housing Area and Mainside during installation of the irrigation lines) during project construction to ensure avoidance or minimization of resource-specific impacts.

5.6 ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED AND ARE NOT AMENABLE TO MITIGATION

This Supplemental EA has determined that the Proposed Action would not result in any significant impacts; therefore, there are no probable adverse environmental effects that cannot be avoided or are not amenable to mitigation.

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CHAPTER 6

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CHAPTER 7

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CHAPTER 8

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Appendix A

Biological Resources Technical Information

Delineation of Wetlands and Other Waters of the U.S.

P-110 Wastewater Conveyance System Supplemental Environmental Assessment



Marine Corps Base Camp Pendleton, California

Prepared by TEC Inc.
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January 2007

**DELINEATION OF WETLANDS AND OTHER WATERS OF THE U.S.
FOR P-110 SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT**

**MARINE CORPS BASE CAMP PENDLETON
CALIFORNIA**

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1 Introduction

The purpose of this report is to document the occurrence of wetlands and other potential waters of the U.S. that may be subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) under section 404 of the Clean Water Act (33 CFR, parts 320-330), in areas potentially affected by the proposed action. The proposed action is modifications to wastewater conveyance pipeline routes, dimensions of reclaimed water reuse areas, and addition of facilities such as pump stations and power poles not addressed/analyzed in the April 2004 *Final Environmental Impact Statement for the Tertiary Treatment Plant and Associated Facilities, MCB Camp Pendleton* (TTP EIS). Wetlands and waters of the U.S. not discussed in report, but illustrated on the figures, were already addressed/analyzed in the TTP EIS (NAVFAC SW 2004a).

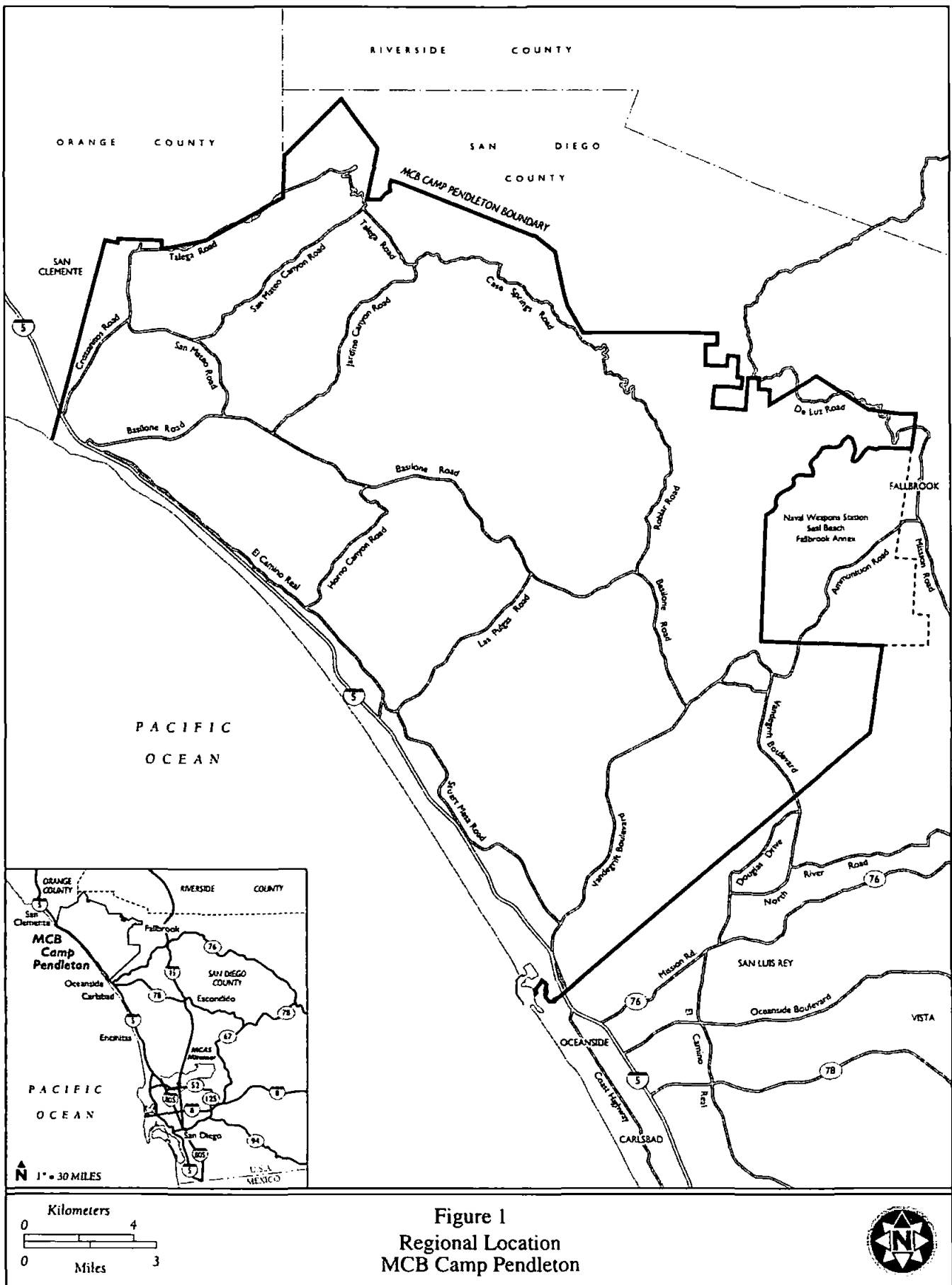
The determinations herein are subject to verification by the Land Management Branch of Marine Corps Base (MCB) Camp Pendleton, by Naval Facilities Engineering Command Southwest (NAVFAC SW), and ultimately by the USACE.

The jurisdictional limits of section 404 of the Clean Water Act extend to 1) **navigable waters**, which are all waters subject to the ebb and flow of the tides, and waters that are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce; 2) **tributaries to navigable waters within the limits of ordinary high water**, defined as a line on the shore or other evidence that was "established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR, part 328.3); and 3) **wetlands (see below) adjacent to navigable waters and their tributaries**. Adjacent is defined as bordering, contiguous, or neighboring. As affirmed by the 2006 Supreme Court ruling in *Carabell v. United States*, the regulation of such adjacent wetlands is based upon a functional relationship to the jurisdictional water body, e.g., through seasonal overflows or groundwater connection. Isolated bodies of water, including wetlands, without a substantial relationship to interstate commerce or hydrologic connection to a water of the U.S., are not considered jurisdictional under current federal policy.

Under section 404 of the Clean Water Act, wetlands are defined as areas that are "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Section 404 wetlands are identified and delineated according to the USACE's (1987) Wetlands Delineation Manual, which requires that, under normal conditions, positive indicators of wetland hydrology, soil, and vegetation are all present. Wetlands are recognized as a special aquatic site under the section 404(b)(1) guidelines, and a "no net loss" policy continues to guide federal regulatory actions affecting wetlands under section 404.

2 Methodology

The Proposed Action would be implemented at MCB Camp Pendleton (Figure 1). The proposed action includes pipeline construction with a 50' corridor (25' either side of pipeline centerline) the entire length of the pipeline during construction, pump station construction, power pole installation with a 50' corridor, and reclaimed water reuse areas.



Initial inspections were conducted on 13 October 2006, during the dry season. Data from the TTP EIS indicated the potential presence of wetlands or other jurisdictional waters of the U.S. (NAVFAC SW 2004). Field investigations of wetlands and jurisdictional waters were conducted on 15 and 20 October, 22 and 30 November 2006, and 10 January 2007. The drainages along Vandegrift connecting to Twin Ponds, the mudflat along the access road to Stuart Mesa Housing, and the drainages along the access road from Mainside were evaluated. The investigations considered the potential jurisdictional status of drainage channels adjacent to the transportation corridors, and road ruts, as well as natural geomorphic drainage features such as swales, ravines, and stream channels.

Electronic drawings of proposed pipelines, pump stations, power poles, and reuse areas and proposed project location were provided by CDM. The proposed pipeline from SRTTP to Vandegrift, from Stuart Mesa to Stuart Mesa Housing, and from Mainside to the Reservoir, where jurisdictional features were evaluated during field investigations, together with the project footprint and a plant community map, were plotted onto the 2003 aerial photographic base map.

The jurisdictional status of each drainage or seasonally ponded area constituting a potential wetland or non-wetland water of the U.S. was evaluated. Wetlands were identified using the 3-parameter approach of the USACE (1987) *Wetlands Delineation Manual*, which may be consulted for additional details on specific criteria. Jurisdictional wetlands have, under normal conditions, positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation. Each criterion is explained briefly below.

- Wetland vegetation is defined as the prevalence of hydrophytic vegetation, meaning that the dominant species comprising the plant community within the area under consideration are adapted to life in saturated soil conditions. Meeting this criterion requires that at least 50% of the dominant plant species have at least facultative (FAC) wetland indicator status, based on the current U.S. Fish and Wildlife Service (USFWS 1996) National List of Plant Species that Occur in Wetlands. Species classified as FAC, FAC*, FAC+, FACW, or OBL meet this criterion and are referred to as wetland indicators. Dominant species were identified with tree, shrub, herb, and vine layers according to the "50/20 Rule" (USACE 1987).
- Wetland hydrology is present when inundated or saturated soil conditions exist for more than 12.5% of the growing season. Wetland hydrology may (but frequently will not) be present if inundated or saturated soil conditions exist for 5% to 12.5% of the growing season. Inundation or saturation for longer than 12.5% of the growing season indicates that wetland hydrology is present. On MCB Camp Pendleton, the growing season is 365 days. Hence the thresholds for sufficient inundation/saturation to provide wetland hydrology are 18 to 46 days (5% to 12.5% of the growing season). Observations can include direct observation of inundation/saturation within 12 inches of the surface during the growing season, or other indicators of inundation/saturation such as flow lines, sediment deposits, drainage patterns, water-stained leaves, and oxidized root channels (see USACE 1987 for further discussion);
- The presence of hydric soils is determined by excavating a soil pit at least 12 inches deep and evaluating the soil for indicators of persistent saturated conditions. Such indicators include high organic content or organic streaking in sandy soils, and gleyed or low chroma colors and mottling in the soil due to reduced iron and/or magnesium (see USACE 1987 for further discussion).

Vegetation is the most obvious indicator of potential jurisdictional wetlands. Coastal sage scrub, grassland, and other communities dominated by non-wetland plants and are not jurisdictional wetlands. No further evaluation of potential wetlands was conducted in areas dominated by non-wetland plant species, although such areas were evaluated for the presence of non-wetland waters of the U.S.

At points within potential wetlands, based on vegetation and proximity to a source of inundation or saturation such as a channel for flowing water, USACE's Routine Wetland Determination data forms were completed to determine whether the plant community in question was or was not a jurisdictional wetland. Consistent with the protocol, 1) vegetation was evaluated as described above using the 50/20 rule to determine the prevalence of hydrophytic vegetation; 2) hydrology was evaluated by visual observations and soils characteristics (see next item); and 3) soil characteristics were evaluated by digging a pit at least 12 inches deep (the rooting zone of vegetation) and carefully evaluating soil texture, color (by reference to color charts), and other features.

For a non-wetland area to be confirmed as a water of the U.S., at minimum, both of the following two indicators had to be observable (33 CFR, part 328):

- Evidence of flow in a defined channel, including actual surface water flow and bed-and-bank topography, differences in substrate or vegetation associated with scouring, and deposits of sediment or vegetative debris associated with flowing water;
- Evidence of a direct connection, either by way of a continuing channel down-gradient, or a connecting jurisdictional wetland, to another water body that is clearly a water of the U.S. by virtue of its connection to navigable waters.

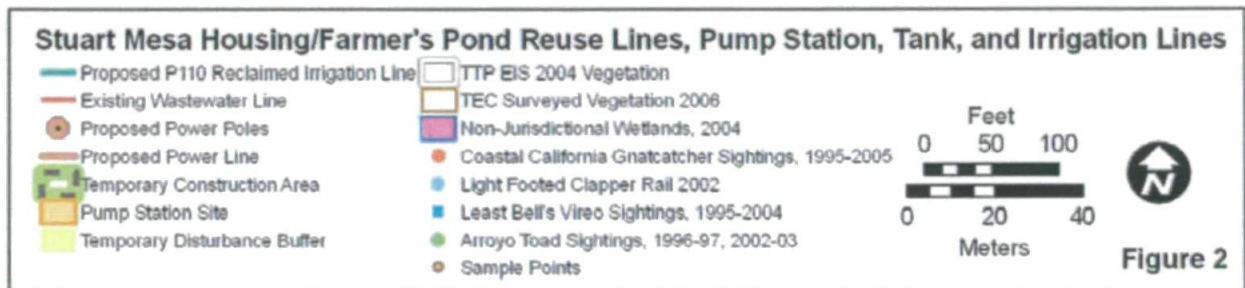
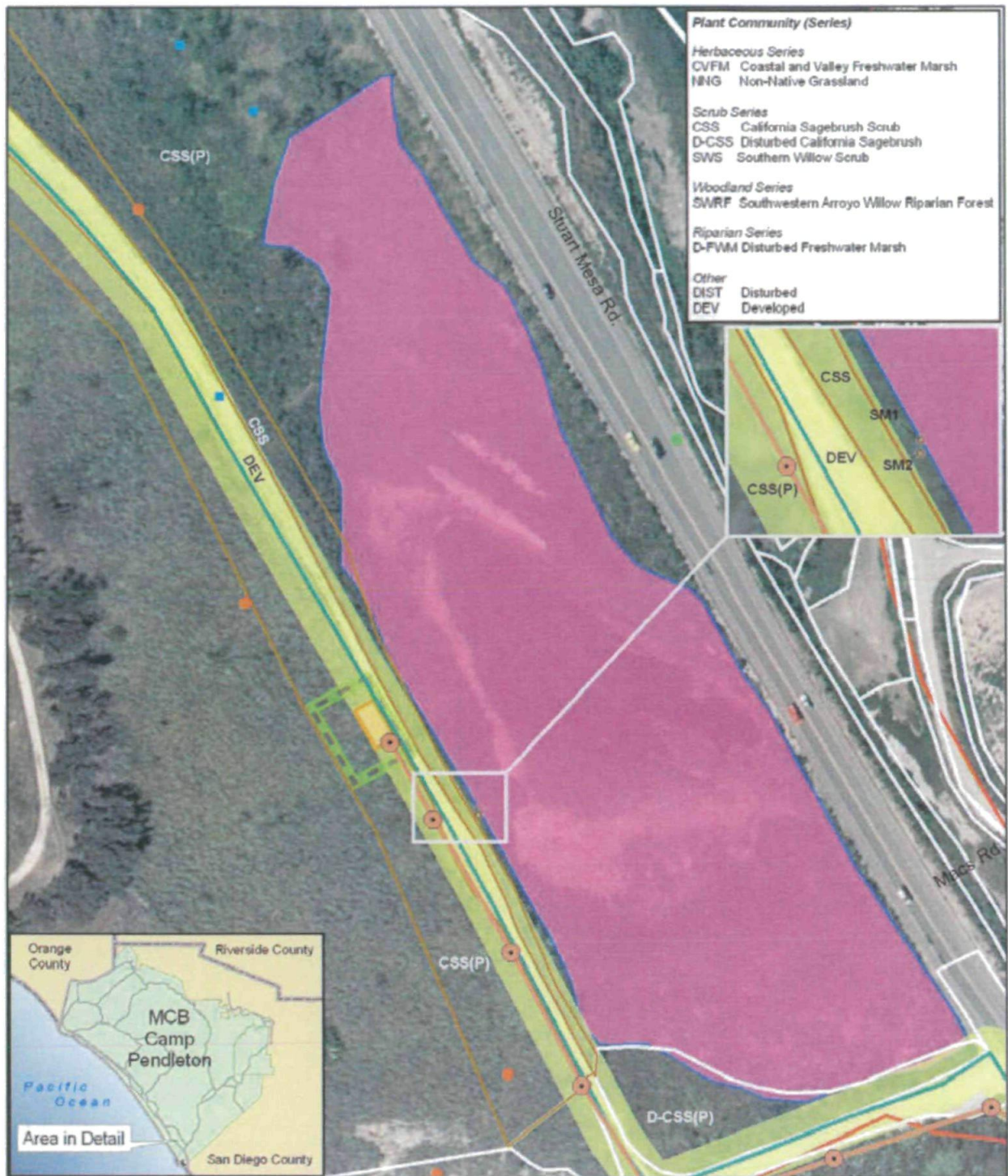
Note that these criteria can be indicative of wetland hydrology, but they relate to only one of three parameters defining wetlands. As discussed in the Introduction above, the jurisdictional status of isolated wetlands hinges on whether they are important to interstate commerce or are adjacent to and/or hydrologically connected to a navigable water of the U.S. To make this determination, each wetland was inspected to assess its potential connection downstream to a water of the U.S.

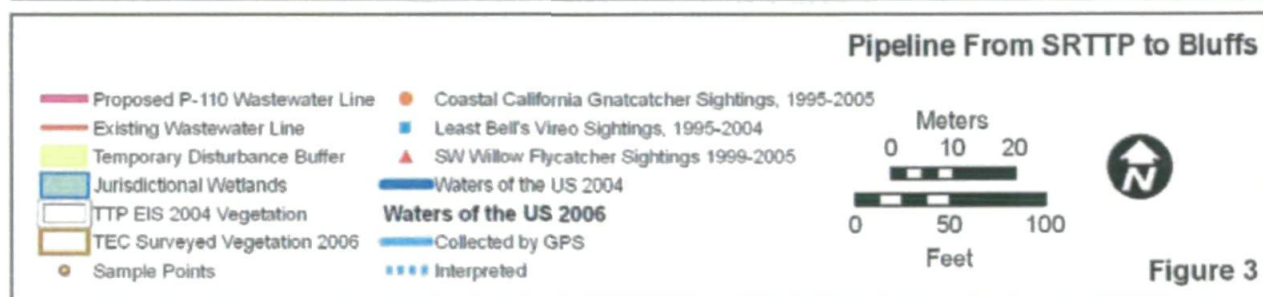
The width of non-wetland stream channels was measured to the nearest foot. A sub-meter geographic positioning system (GPS) was used to map potential jurisdictional features. This information was combined with GIS maps of the proposed project area, digital aerial photographs taken in 2003, and other natural resource data provided by MCB Camp Pendleton. All GIS information, including the delineation of jurisdictional areas, is plotted on aerial base maps.

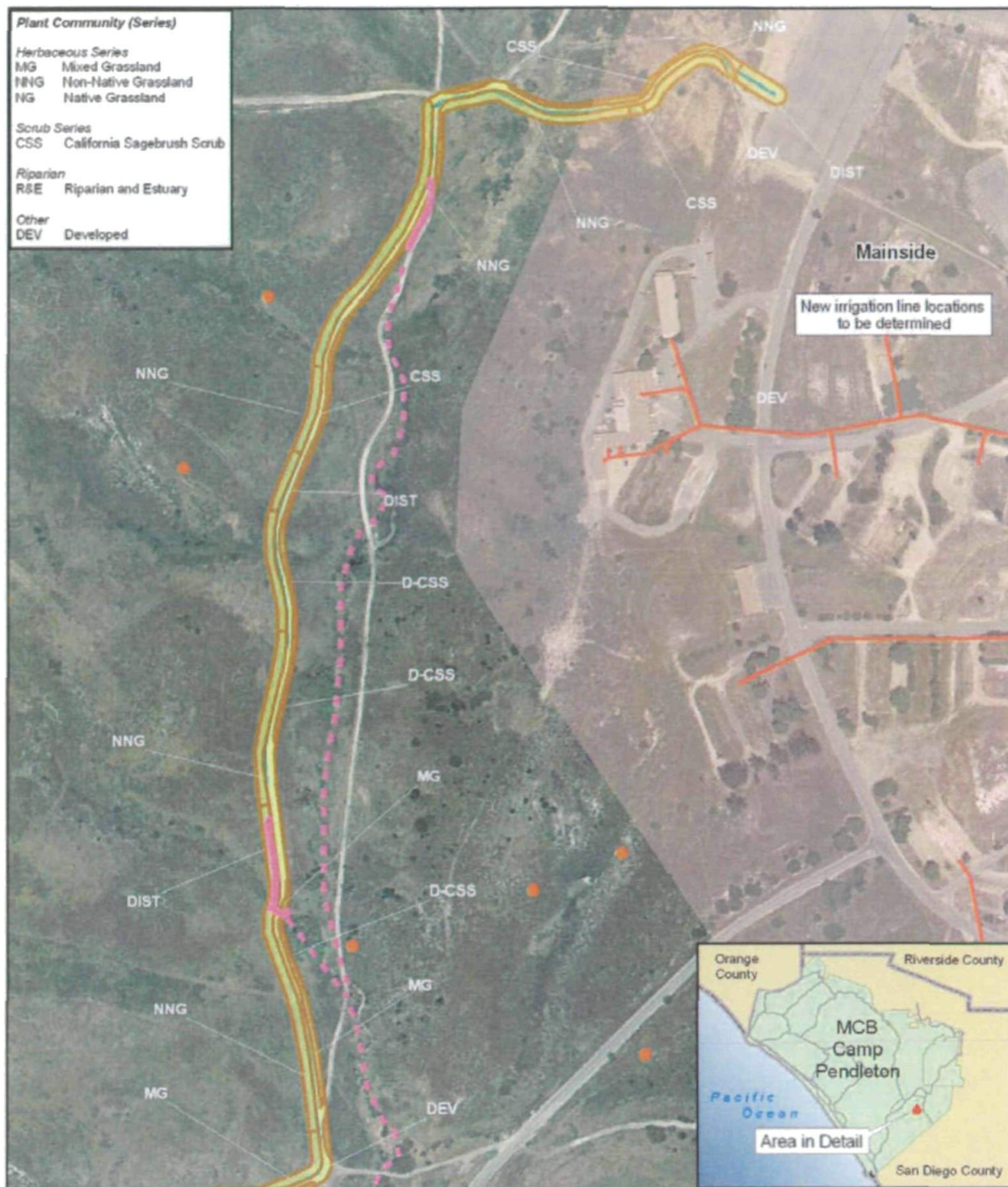
3 Results

Potential jurisdictional waters and wetlands were identified and evaluated in several locations, shown in Figures 2-4, that were not previously evaluated in the TTP EIS (NAVFAC SW 2004a). One wetland determined to be non-jurisdictional was found within the proposed project area for the supplemental EA. A non-jurisdictional wetland is adjacent to the pipeline buffer on the east side of the access road to Stuart Mesa Housing (Figure 2). The wetland is not jurisdictional because it does not connect to the SMR. Data sheets used to delineate the wetland are included in Appendix A. Wetland boundaries were drawn during surveys for the pump station and force main EA (NAVFAC SW 2004b).

Two non-jurisdictional drainages are located along the Pipeline from Mainside to the Radio Tower (Figure 4). The drainages begin as runoff ruts along the side of the dirt road. The northern drainage channel originates on the east side of the access road from Mainside and flows southeast away from the project area. The southern drainage channel originates on the west side of the Mainside access road and flows south to a culvert under the access road then flows southeast away from the project area (Figure 4). The two drainages connect southeast of the southern drainage. A channel continues southward but ends







Reclaimed Water Supply to Mainside - North Plant Communities, Aquatic Habitats, and Special Status Species

- Proposed P-110 Reclaimed Irrigation Line
- Temporary Disturbance Buffer
- Irrigation Lines TBD
- TEC Surveyed Vegetation 2006
- Non-Jurisdictional Drainage, 2006
- Non-Jurisdictional Drainage, 2006 (Not GPS'd)
- Existing Wastewater Line
- Coastal California Gnatcatcher Sightings 1995-2005

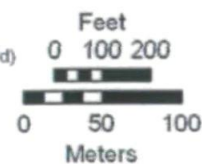
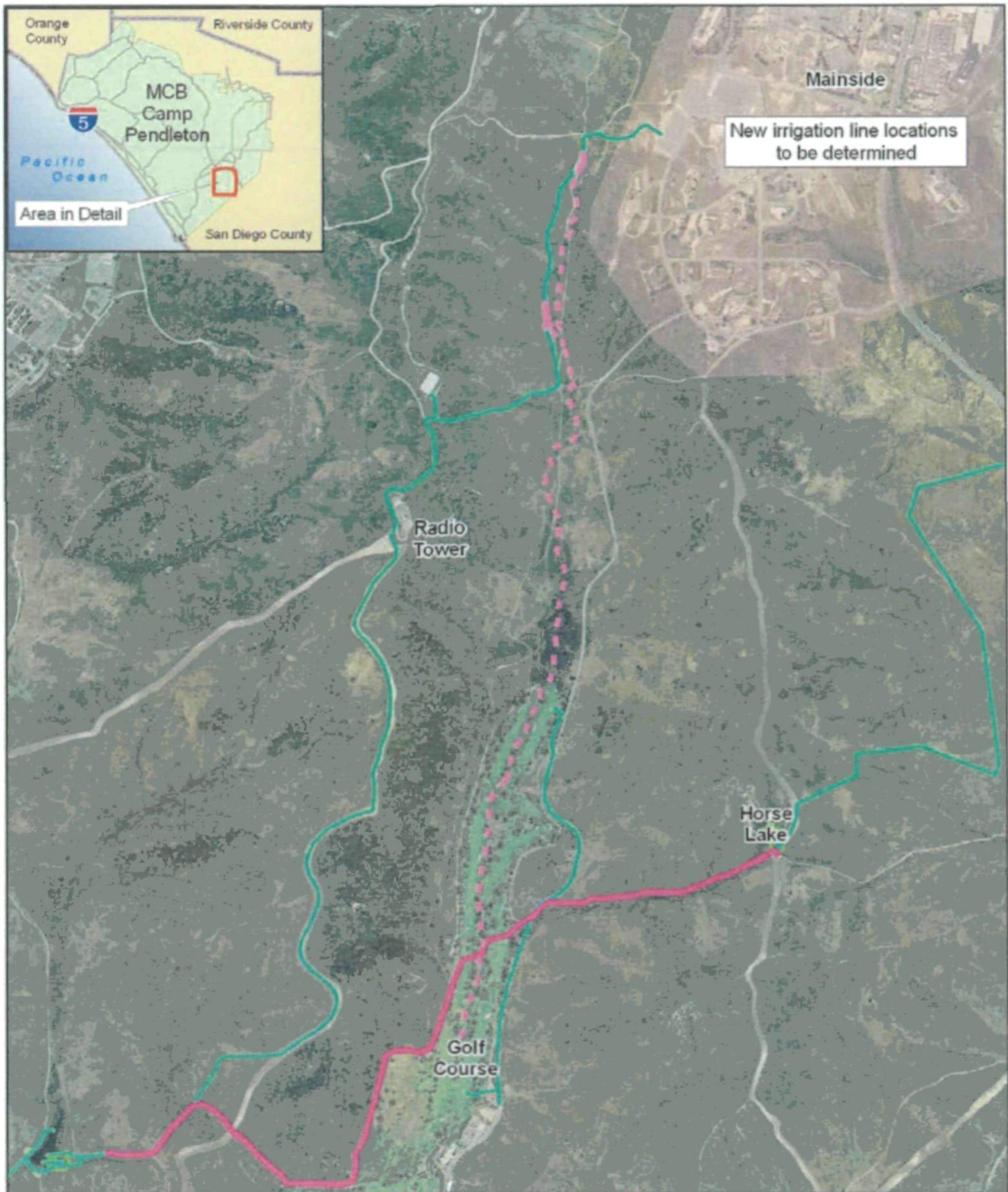


Figure 4



Reclaimed Water Supply to Mainside

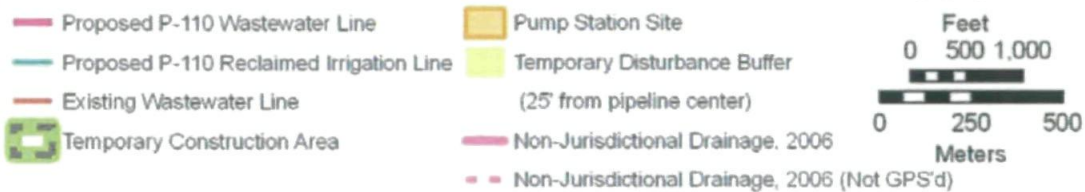


Figure 5

within the Golf Course (Figure 5). Since these drainages are isolated, they are not considered jurisdictional.

One jurisdictional drainage and one jurisdictional wetland were delineated within the proposed project area. One drainage and the wetland are located in the Santa Margarita River (SMR) watershed. SMR is west of the drainage and is the major river which flows to the Pacific Ocean. The drainage crosses Vandegrift Blvd. south of project area flows along the west side of Vandegrift Blvd., perpendicularly crosses the proposed pipeline, then flows west to Twin ponds (Figure 3). A drainage on the west side of Twin ponds flows to the SMR. The drainage is four feet wide through the D-CSS on the south end of the project footprint. Through the disturbed area in the project footprint the drainage is two feet wide. The jurisdictional status of the drainage was determined by the connection of the channel to the SMR and ultimately to the Pacific Ocean. A cocklebur (*Xanthium strumarium*) dominated jurisdictional wetland surrounds the water of the U.S. Data sheets are included in Appendix A.

4 Conclusions and Recommendations

The areas of non-wetland waters of the U.S. within the project footprint that are potentially impacted by the proposed action are shown in Table 1. The acreage of the jurisdictional wetland is shown in Table 2. The impacts of the proposed action would primarily entail excavation, pipe placement, and filling of soil for the pipeline construction.

Table 1. Non-Wetland Waters of the U.S. Potentially Impacted by the Proposed Action

Location	Width x Length (ft)	Area (acres)
SRTTP to Vandegrift	2 x 35 4 x 15	0.0030

Total Area Potentially Impacted: 0.0030 acre

Table 2. Jurisdictional Wetlands Potentially Impacted by the proposed Action

Location	Area (acres)
SRTTP to Vandegrift	0.0028

Total Area Potentially Impacted: 0.0028 acre

Construction of the pipeline from SRTTP to the bluffs would require dredge and fill within small areas of jurisdictional wetland and other waters of the U.S. The combined area that may be affected is 0.0058 acre and would be well within the limits of Nationwide Permit #14 (less than 0.5 acre of fill). Discussion with USACE is recommended to confirm these conclusions prior to contracting for the final design and construction of the project.

5 References

NAVFAC SW. 2004a. Final EIS for the TTP and Associated Facilities. MCB Camp Pendleton, CA. April.

NAVFAC SW. 2004b. Environmental Assessment for the Installation of a New Pump Station and Force Mains. Marine Corps Base Camp Pendleton, CA. October.

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Appendix A – Data Sheets

ROUTINE WETLAND DETERMINATION

Project/Site:	P-110 Supplemental EA		State:	California
Applicant/Owner:	MCB Camp Pendleton		County:	San Diego
Investigator(s):	Melissa Tu		S/T/R	
Date:	11/30/06			
Do normal circumstances exist on the site?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Community ID:	D-CAM
Is the site significantly disturbed (atypical situation)?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Transect ID:	Stuart Mesa
Is the area a potential problem area?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Plot ID:	SM-1
(If needed, explain below)				

VEGETATION

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species	Strata	% Rel. Cover	Indicator
<i>Frankenia salina</i>	herb	90	FACW+				
Percent of dominants that are OBL, FACW, or FAC (excluding FAC-):				100	Total vegetation cover 100 %		
<input type="checkbox"/> Visual Observation of Plant Species Growing in Areas of prolonged Inundation/Saturation <input type="checkbox"/> Morphological Adaptations <input type="checkbox"/> Technical Literature				<input type="checkbox"/> Physiological/Reproductive Adaptations <input checked="" type="checkbox"/> Personal knowledge of plant preferences <input type="checkbox"/> Other (explain below)			
Hydrophytic Vegetation Present?				<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Remarks: Upper salt marsh vegetation on slope from mudflat to flat area along road. Lower, closer to the mudflat is dominated with <i>Salicornia virginica</i> .							

HYDROLOGY

Is it the growing season? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Wetland Hydrology Indicators:	
Based On: <input type="checkbox"/> Soil Temp (record)		Primary Indicators:	
<input checked="" type="checkbox"/> Other (explain) 11/30/2006		<input type="checkbox"/> Inundated	
Typical length: 365 Days 5% =		<input type="checkbox"/> Saturated Upper 12 Inches	
Recorded Data (describe below):		<input type="checkbox"/> Water Marks	
<input type="checkbox"/> Stream, Lake, or Tide Gauge		<input type="checkbox"/> Drift Lines	
<input checked="" type="checkbox"/> Aerial Photographs		<input type="checkbox"/> Sediment Deposits	
<input type="checkbox"/> Other		<input checked="" type="checkbox"/> Drainage Patterns in Wetlands	
<input type="checkbox"/> None Available		Secondary Indicators (2 or more required):	
Field Observations:		<input checked="" type="checkbox"/> Oxidized Rhizospheres in Upper 12 Inches	
Depth of Surface Water: -- inches		<input type="checkbox"/> Water-Stained Leaves	
Depth to Standing Water in Pit: -- inches		<input type="checkbox"/> Local Soil Survey Data	
Depth to Saturated Soil: >12 inches (12 inch determination)		<input type="checkbox"/> FAC-Neutral Test	
<input type="checkbox"/> Other (explain below)		<input type="checkbox"/> Other (explain below)	
Wetland Hydrology Present? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Remarks: This area would be inundated or saturated during the rainy season when the mudflat fills with water. The area is isolated and does not connect to the Santa Margarita River.			

SOILS

Plot ID: SM-1

Map Unit Name (series and phase): <u>Gaviota fine sandy loam, 30-50% slope</u>					Drainage Class: <u>well-drained</u>			
Taxonomy (subgroup): <u>Lithic Xerorthents</u>					Field observations confirm mapped type? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Is data point located within a hydric inclusion? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO								
Profile Description								
Horizon	Depth (inches)	Texture	Structure	Matrix Color (moist)	Redoximorphic Features			Other
					Abundance, Size, Contrast	Type, location streaks, 2-7 inches	Color (moist)	
A	0-12	clay loam		10yr5/3	c,3,d		7.5yr5/8	tiny concretions, mostly streaking
Hydric Soil Indicators (check all that apply):								
<input type="checkbox"/> Histosol <input checked="" type="checkbox"/> Mn or Fe Concretions or Nodules <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Listed on National/Local Hydric Soils List <input type="checkbox"/> Reducing Conditions (α , α' - dipyrldyl test) <input type="checkbox"/> Other (explain below) <input type="checkbox"/> Gleyed or Low-Chroma (≤ 1) matrix <input type="checkbox"/> Matrix Chroma ≤ 2 with Redoximorphic Concentrations and/or Depletions								
Hydric Soils Present? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO								
Remarks: soil pit 12 inches deep. Many oxidized root channels.								

WETLAND DETERMINATION :

Hydrophytic vegetation present? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Wetland hydrology present? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Hydric soils present? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Is the sampling point within a wetland? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Remarks: Isolated wetland. Upper edge of mudflat			

Texture and Rock Fragment Content

Texture	Rock Fragments
cos - coarse sand	vfsi - very fine sandy loam
s - sand	l - loam
fs - fine sand	sil - silt loam
vfs - very fine sand	si - silt
loos - loamy coarse sand	scl - sandy clay loam
ls - loamy sand	cl - clay loam
lfs - loamy fine sand	sicl - silty clay loam
lvfs - loamy very fine sand	sc - sandy clay
cosl - coarse sandy loam	sic - silty clay
sl - sandy loam	c - clay
fsi - fine sandy loam	

Redoximorphic Feature Morphology

Abundance	Type
f - few	Fe-x - iron concentration (soft mass)
c - common	Fe-nc - iron nodule or concretion
m - many	Mn-x - manganese concentration (soft mass)
	Mn-nc - manganese nodule or concretion
	d - depletion
Size	Location
1 - fine (<2mm)	mat - soil matrix
2 - medium (2-5mm)	ped - ped surface
3 - coarse (5-20mm)	por - soil pores
4 - very coarse (20-76mm)	otr - other
5 - extremely coarse (>76mm)	
Contrast	
f - faint	
d - distinct	
p - prominent	

ROUTINE WETLAND DETERMINATION

Project/Site:	P-110 Supplemental EA		State:	California
Applicant/Owner:	MCB Camp Pendleton		County:	San Diego
Investigator(s):	Melissa Tu		S/T/R	
Date:	11/30/06			
Do normal circumstances exist on the site?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Community ID:	D-CSS/ D-CAM
Is the site significantly disturbed (atypical situation)?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Transect ID:	Stuart Mesa
Is the area a potential problem area? (If needed, explain below)	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Plot ID:	SM-2

VEGETATION

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species	Strata	% Rel. Cover	Indicator
<i>Frankenia salina</i>	herb	50	FACW+				
<i>Distichlis spicata</i>	herb	40	FACW				

Percent of dominants that are OBL, FACW, or FAC (excluding FAC-): 100 Total vegetation cover 80 %

☐ Visual Observation of Plant Species Growing in Areas of prolonged Inundation/Saturation
 ☐ Physiological/Reproductive Adaptations

☐ Morphological Adaptations
 ☐ Personal knowledge of plant preferences

☐ Technical Literature
 ☐ Other (explain below)

Hydrophytic Vegetation Present? ☒ YES ☐ NO

Remarks:
 Level area above mudflat. North and south at same distance from the mudflat *Baccharis pilularis* and *Isocoma menziesii* is growing.

HYDROLOGY

Is it the growing season? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Wetland Hydrology Indicators:	
Based On: <input type="checkbox"/> Soil Temp (record)	<input checked="" type="checkbox"/> Other (explain)	Primary Indicators:	<input type="checkbox"/> Inundated
Typical length: 365 Days	5% =	<input type="checkbox"/> Saturated Upper 12 Inches	<input type="checkbox"/> Water Marks
Recorded Data (describe below):		<input type="checkbox"/> Stream, Lake, or Tide Gauge	<input type="checkbox"/> Drift Lines
<input checked="" type="checkbox"/> Aerial Photographs		<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Drainage Patterns in Wetlands
<input type="checkbox"/> Other			
<input type="checkbox"/> None Available			
Field Observations:		Secondary Indicators (2 or more required):	
Depth of Surface Water:	-- inches	<input checked="" type="checkbox"/> Oxidized Rhizospheres in Upper 12 Inches	
Depth to Standing Water in Pit:	-- inches	<input type="checkbox"/> Water-Stained Leaves	
Depth to Saturated Soil:	>7 inches (12 inch determination)	<input type="checkbox"/> Local Soil Survey Data	
		<input checked="" type="checkbox"/> FAC-Neutral Test	
		<input type="checkbox"/> Other (explain below)	
Wetland Hydrology Present? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Remarks:			
Area appears to be above the level of recent inundation/saturation, but the previous year was very dry and this area could be inundated/saturated by flooding of the adjacent basin in a wetter year. Ground is very hard unable to dig 12" pit. Few faint oxidized root channels.			

Plot ID: SM-2

Map Unit Name (series and phase): <u>Gaviota fine sandy loam, 30-50% slope</u>					Drainage Class: <u>well-drained</u>			
Taxonomy (subgroup): <u>Lithic Xerorthents</u>					Field observations confirm mapped type? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Is data point located within a hydric inclusion? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO								
Profile Description								
Horizon	Depth (inches)	Texture	Structure	Matrix Color (moist)	Redoximorphic Features			Other
					Abundance, Size, Contrast	Type, location	Color (moist)	
A	0-7	clay loam		10yr5/4	<1%	few streaks 0-2 inches	7.5yr5/8	no concretions
Hydric Soil Indicators (check all that apply):								
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions (α , α' -dipyridyl test) <input type="checkbox"/> Gleyed or Low-Chroma (≤ 1) matrix <input type="checkbox"/> Matrix Chroma ≤ 2 with Redoximorphic Concentrations and/or Depletions					<input type="checkbox"/> Mn or Fe Concretions or Nodules <input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on National/Local Hydric Soils List <input type="checkbox"/> Other (explain below)			
Hydric Soils Present? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO								
Remarks: Soil pit 7 inches deep. A few oxidized root channels.								

Hydrophytic vegetation present?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
Wetland hydrology present?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
Hydric soils present?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Is the sampling point within a wetland? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Remarks: The area probably is occasionally flooded/saturated to support the <i>Frankenia salina</i> and <i>Distichlis spicata</i> but lacks hydric soil and is not a wetland. The area is also isolated and for that reason would not be jurisdictional under Section 404.			

Redoximorphic Feature Morphology

Texture		Rock Fragments	Abundance	Type
cos - coarse sand	vfsi - very fine sandy loam	gr - gravelly	f - few	Fe-x - iron concentration (soft mass)
s - sand	l - loam	vgr - very gravelly	c - common	Fe-nc - iron nodule or concretion
fs - fine sand	sil - silt loam	xgr - extremely gravelly	m - many	Mn-x - manganese concentration (soft mass)
vfs - very fine sand	si - silt	cb - cobbly		Mn-nc - manganese nodule or concretion
loos - loamy coarse sand	scli - sandy clay loam	vcb - very cobbly	Size	d - depletion
ls - loamy sand	cl - clay loam	xcb - extremely cobbly	1 - fine (<2mm)	
lfs - loamy fine sand	sicli - silty clay loam	st - stony	2 - medium (2-5mm)	Location
lvfs - loamy very fine sand	sc - sandy clay	vst - very stony	3 - coarse (5-20mm)	mat - soil matrix
coosi - coarse sandy loam	sic - silty clay	xst - extremely stony	4 - very coarse (20-76mm)	ped - ped surface
sl - sandy loam	c - clay		5 - extremely coarse (>76mm)	por - soil pores
fsli - fine sandy loam				otr - other
			Contrast	
			f - faint	
			d - distinct	
			p - prominent	

DATA FORM
ROUTINE WETLAND DETERMINATION

Project/Site:	P-110 Supplemental EA		State:	California
Applicant/Owner:	MCB Camp Pendleton		County:	San Diego
Investigator(s):	Melissa Tu		S/T/R	
Date:	11/30/06			
Do normal circumstances exist on the site?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Community ID:	DIST
Is the site significantly disturbed (atypical situation)?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Transect ID:	SRTTP
Is the area a potential problem area? (If needed, explain below)	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Plot ID:	SRTTP1

VEGETATION

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species	Strata	% Rel. Cover	Indicator
<i>Xanthium strumarium</i>	herb	85	FAC+				

Percent of dominants that are OBL, FACW, or FAC (excluding FAC-): 100 Total vegetation cover 55 %

☐ Visual Observation of Plant Species Growing in Areas of prolonged Inundation/Saturation
 ☐ Physiological/Reproductive Adaptations

☐ Morphological Adaptations
 ☒ Personal knowledge of plant preferences

☐ Technical Literature
 ☐ Other (explain below)

Hydrophytic Vegetation Present? ☒ YES ☐ NO

Remarks:
Stand of cocklebur along drainage in old disturbed road.

HYDROLOGY

Is it the growing season? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO				Wetland Hydrology Indicators:	
Based On:	<input type="checkbox"/> Soil Temp (record)			Primary Indicators:	
	<input checked="" type="checkbox"/> Other (explain)	11/30/2006			
Typical length:	365	Days	5% =	<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated Upper 12 Inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands	
Recorded Data (describe below):				Secondary Indicators (2 or more required):	
<input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> None Available				<input type="checkbox"/> Oxidized Rhizospheres in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (explain below)	
Field Observations:					
Depth of Surface Water:		--	inches		
Depth to Standing Water in Pit:		--	inches		
Depth to Saturated Soil:		>12	inches		
(12 inch determination)					
Wetland Hydrology Present?				<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Remarks:					
The drainage channel was wet but the soil was not saturated. There were sticks and organic debris stuck in the cocklebur.					

SOILS

Plot ID: SRTTP 1

Map Unit Name (series and phase): <u>Visalia sandy loam, 0 to 2%</u>					Drainage Class: <u>moderately well drained</u>			
Taxonomy (subgroup): <u>Pachic Haploxerolls</u>					Field observations confirm mapped type? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Is data point located within a hydric inclusion? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO								
Profile Description								
Horizon	Depth (inches)	Texture	Structure	Matrix Color (moist)	Redoximorphic Features			Other
					Abundance, Size, Contrast	Type, location	Color (moist)	
A	0-9	loamy sand		10yr4/3				
B	9-12	sandy loam		10y4/1				

Hydric Soil Indicators (check all that apply):

<input type="checkbox"/> Histosol	<input type="checkbox"/> Mn or Fe Concretions or Nodules
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions (α , α' - dipyridyl test)	<input type="checkbox"/> Other (explain below)
<input checked="" type="checkbox"/> Gleyed or Low-Chroma (≤ 1) matrix	
<input type="checkbox"/> Matrix Chroma ≤ 2 with Redoximorphic Concentrations and/or Depletions	

Hydric Soils Present? ☒ YES ☐ NO

Remarks:

WETLAND DETERMINATION :

Hydrophytic vegetation present?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Wetland hydrology present?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Hydric soils present?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Is the sampling point within a wetland? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Remarks:		
The sampling point is a jurisdictional wetland. The vegetation is the indicator of the wetland boundary.		

Texture and Rock Fragment Content

Texture		Rock Fragments
cos - coarse sand	vfsi - very fine sandy loam	gr - gravelly
s - sand	l - loam	vgr - very gravelly
fs - fine sand	sil - silt loam	xgr - extremely gravelly
vfs - very fine sand	si - silt	cb - cobbly
loos - loamy coarse sand	scil - sandy clay loam	vcb - very cobbly
ls - loamy sand	cl - clay loam	xcb - extremely cobbly
lfs - loamy fine sand	sicil - silty clay loam	st - stony
lvfs - loamy very fine sand	sc - sandy clay	vst - very stony
cosl - coarse sandy loam	sic - silty clay	xst - extremely stony
sl - sandy loam	c - clay	
fst - fine sandy loam		

Redoximorphic Feature Morphology

Abundance	Type
f - few	Fe-x - iron concentration (soft mass)
c - common	Fe-nc - iron nodule or concretion
m - many	Mn-x - manganese concentration (soft mass)
	Mn-nc - manganese nodule or concretion
	d - depletion
Size	Location
1 - fine (<2mm)	mat - soil matrix
2 - medium (2-5mm)	ped - ped surface
3 - coarse (5-20mm)	por - soil pores
4 - very coarse (20-76mm)	otr - other
5 - extremely coarse (>76mm)	
Contrast	
f - faint	
d - distinct	
p - prominent	

ROUTINE WETLAND DETERMINATION

Project/Site:	P-110 Supplemental EA	State:	California
Applicant/Owner:	MCB Camp Pendleton	County:	San Diego
Investigator(s):	Melissa Tu	S/T/R	
Date:	11/30/06		
Do normal circumstances exist on the site?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Community ID:	DIST
Is the site significantly disturbed (atypical situation)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Transect ID:	SRTTP
Is the area a potential problem area? (If needed, explain below)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Plot ID:	SRTTP2

VEGETATION

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species	Strata	% Rel. Cover	Indicator
<i>Foeniculum vulgare</i>	herb	see Remarks	FACU				

Percent of dominants that are OBL, FACW, or FAC (excluding FAC-): 0 Total vegetation cover 1 %

☐ Visual Observation of Plant Species Growing in Areas of prolonged Inundation/Saturation
 ☐ Physiological/Reproductive Adaptations

☐ Morphological Adaptations
 ☐ Personal knowledge of plant preferences

☐ Technical Literature
 ☐ Other (explain below)

Hydrophytic Vegetation Present? ☐ YES ☒ NO

Remarks:
Area is mostly unvegetated, but with a few fennel plants; it is an old dirt road.

HYDROLOGY

Is it the growing season? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO				Wetland Hydrology Indicators:	
Based On:	<input type="checkbox"/> Soil Temp (record)			Primary Indicators:	
	<input checked="" type="checkbox"/> Other (explain)	11/30/2006		<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands	
Typical length:	365 Days	5% =			
Recorded Data (describe below):					
<input type="checkbox"/> Stream, Lake, or Tide Gauge					
<input type="checkbox"/> Aerial Photographs					
<input type="checkbox"/> Other					
<input checked="" type="checkbox"/> None Available					
Field Observations:					
Depth of Surface Water:	--	inches			
Depth to Standing Water in Pit:	--	inches			
Depth to Saturated Soil:	>12	inches			
	(12 inch determination)				
Secondary Indicators (2 or more required):					
<input type="checkbox"/> Oxidized Rhizospheres in Upper 12 Inches					
<input type="checkbox"/> Water-Stained Leaves					
<input type="checkbox"/> Local Soil Survey Data					
<input type="checkbox"/> FAC-Neutral Test					
<input type="checkbox"/> Other (explain below)					
Wetland Hydrology Present?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Remarks:					

SOILS

Plot ID: SRTTP 2

Map Unit Name (series and phase): <u>Visalia sandy loam, 0 to 2%</u>					Drainage Class: <u>moderately well drained</u>			
Taxonomy (subgroup): <u>Pachic Haploxerolls</u>					Field observations confirm mapped type? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Is data point located within a hydric inclusion? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO								
Profile Description								
Horizon	Depth (inches)	Texture	Structure	Matrix Color (moist)	Redoximorphic Features			Other
					Abundance, Size, Contrast	Type, location	Color (moist)	
A	0-10	loamy sand		10yr4/4				
B	10-12	sandy loam		5y5/1				

Hydric Soil Indicators (check all that apply):

<input type="checkbox"/> Histosol	<input type="checkbox"/> Mn or Fe Concretions or Nodules
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions (α , α' - dipyrldyl test)	<input type="checkbox"/> Other (explain below)
<input checked="" type="checkbox"/> Gleyed or Low-Chroma (≤ 1) matrix	
<input type="checkbox"/> Matrix Chroma ≤ 2 with Redoximorphic Concentrations and/or Depletions	

Hydric Soils Present? ☒ YES ☐ NO

Remarks:
Gleyed layer present at depth, but this does not reflect current conditions of flooding since neither vegetation nor hydrologic indicators are present. Soils were probably redistributed and drainage modified when roads and sewage treatment ponds were constructed.

WETLAND DETERMINATION :

Hydrophytic vegetation present?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
Wetland hydrology present?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
Hydric soils present?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Is the sampling point within a wetland? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Remarks: The sampling point is a mostly unvegetated, disturbed area outside of the wetland boundary, which coincides with the edge of the cocklebur stand.		

Texture and Rock Fragment Content

Texture		Rock Fragments
cos - coarse sand	vfsi - very fine sandy loam	gr - gravelly
s - sand	l - loam	vgr - very gravelly
fs - fine sand	sil - silt loam	xgr - extremely gravelly
vfs - very fine sand	sl - silt	cb - cobbly
loos - loamy coarse sand	scf - sandy clay loam	vcb - very cobbly
ls - loamy sand	cl - clay loam	xcb - extremely cobbly
lfs - loamy fine sand	sicf - silty clay loam	st - stony
lvfs - loamy very fine sand	sc - sandy clay	vst - very stony
cosl - coarse sandy loam	sic - silty clay	xst - extremely stony
sl - sandy loam	c - clay	
fsl - fine sandy loam		

Redoximorphic Feature Morphology

Abundance	Type
f - few	Fe-x - iron concentration (soft mass)
c - common	Fe-nc - iron nodule or concretion
m - many	Mn-x - manganese concentration (soft mass)
	Mn-nc - manganese nodule or concretion
	d - depletion
Size	Location
1 - fine (<2mm)	mat - soil matrix
2 - medium 2-5mm	ped - ped surface
3 - coarse (5-20mm)	por - soil pores
4 - very coarse (20-76mm)	otr - other
5 - extremely coarse (>76mm)	
Contrast	
f - faint	
d - distinct	
p - prominent	

ROUTINE WETLAND DETERMINATION

Project/Site:	P-110 Supplemental EA	State:	California
Applicant/Owner:	MCB Camp Pendleton	County:	San Diego
Investigator(s):	Melissa Tu	S/T/R	
Date:	11/30/06		
Do normal circumstances exist on the site?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Community ID:	DIST
Is the site significantly disturbed (atypical situation)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Transect ID:	SRTTP
Is the area a potential problem area? (If needed, explain below)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Plot ID:	SRTTP3

VEGETATION

Dominant Plant Species	Strata	% Rel. Cover	Indicator	Associate Plant Species	Strata	% Rel. Cover	Indicator
<i>Brassica nigra</i>	herb	80	NI				

Percent of dominants that are OBL, FACW, or FAC (excluding FAC-): 0 Total vegetation cover 60 %

☐ Visual Observation of Plant Species Growing in Areas of prolonged Inundation/Saturation
 ☐ Physiological/Reproductive Adaptations

☐ Morphological Adaptations
 ☐ Personal knowledge of plant preferences

☐ Technical Literature
 ☐ Other (explain below)

Hydrophytic Vegetation Present? ☐ YES ☒ NO

Remarks:
Area is disturbed and weedy; it is an old dirt road. Pieces of asphalt are in the area.

HYDROLOGY

Is it the growing season? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Based On: <input type="checkbox"/>	Soil Temp (record)		
<input checked="" type="checkbox"/>	Other (explain)	11/30/2006	
Typical length:	365 Days	5% =	
Recorded Data (describe below):			
<input type="checkbox"/>	Stream, Lake, or Tide Gauge		
<input type="checkbox"/>	Aerial Photographs		
<input type="checkbox"/>	Other		
<input checked="" type="checkbox"/>	None Available		
Field Observations:			
Depth of Surface Water:	--	inches	
Depth to Standing Water in Pit:	--	inches	
Depth to Saturated Soil:	>12	inches	
	(12 inch determination)		
Wetland Hydrology Present?		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Remarks:			

SOILS

Plot ID: SRTTP 3

Map Unit Name (series and phase): <u>Visalia sandy loam, 0 to 2%</u>					Drainage Class: <u>moderately well drained</u>			
Taxonomy (subgroup): <u>Pachic Haploxerolls</u>					Field observations confirm mapped type? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Is data point located within a hydric inclusion? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO								
Profile Description								
Horizon	Depth (inches)	Texture	Structure	Matrix Color (moist)	Redoximorphic Features			Other
					Abundance, Size, Contrast	Type, location	Color (moist)	
A	0-3	loamy sand		10yr4/4				
B	>3	rock?	cemented?	no data				
Hydric Soil Indicators (check all that apply):								
<input type="checkbox"/> Histosol <input type="checkbox"/> Mn or Fe Concretions or Nodules								
<input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils								
<input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Organic Streaking in Sandy Soils								
<input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Listed on National/Local Hydric Soils List								
<input type="checkbox"/> Reducing Conditions (α , α' - dipyrityl test) <input type="checkbox"/> Other (explain below)								
<input type="checkbox"/> Gleyed or Low-Chroma (≤ 1) matrix								
<input type="checkbox"/> Matrix Chroma ≤ 2 with Redoximorphic Concentrations and/or Depletions								
Hydric Soils Present? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO								
Remarks: Soil too hard to dig a deeper pit. At 3 inches, encountered hard, cemented layer; probably concrete rubble from old road.								

WETLAND DETERMINATION :

Hydrophytic vegetation present?		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
Wetland hydrology present?		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
Hydric soils present?		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Is the sampling point within a wetland? <input type="checkbox"/> YES <input type="checkbox"/> NO
Remarks: The sampling point is not a wetland. The vegetation is the indicator of the wetland boundary.				

Texture and Rock Fragment Content

Texture	Rock Fragments
cos - coarse sand	gr - gravelly
s - sand	vgr - very gravelly
fs - fine sand	xgr - extremely gravelly
vfs - very fine sand	cb - cobbly
loos - loamy coarse sand	vcb - very cobbly
ls - loamy sand	xcb - extremely cobbly
lfs - loamy fine sand	st - stony
lvfs - loamy very fine sand	vst - very stony
cosl - coarse sandy loam	xst - extremely stony
sl - sandy loam	
fsl - fine sandy loam	

Redoximorphic Feature Morphology

Abundance	Type
f - few	Fe-x - iron concentration (soft mass)
c - common	Fe-nc - iron nodule or concretion
m - many	Mn-x - manganese concentration (soft mass)
	Mn-nc - manganese nodule or concretion
	d - depletion
Size	Location
1 - fine (<2mm)	mat - soil matrix
2 - medium (2-5mm)	ped - ped surface
3 - coarse (5-20mm)	por - soil pores
4 - very coarse (20-76mm)	otr - other
5 - extremely coarse (>76mm)	
Contrast	
f - faint	
d - distinct	
p - prominent	

Appendix B – Supporting Photographs

**Photographs of Waters of U.S. and Wetlands for P-110 Supplemental
Environmental Assessment October & November 2006**



Photo Number: 1

Comment: November 15, 2006, jurisdictional wetland and water of the U.S. drainage channel across the proposed pipeline from SRTTP to Vandegrift looking south.



Photo Number: 2

Comment: November 15, 2006, jurisdictional wetland and water of the U.S. drainage channel across the proposed pipeline from SRTTP to Vandegrift looking north.



Photo Number: 3

Comment: November 15, 2006, jurisdictional wetland and water of the U.S. drainage channel through the proposed site for the pipeline from SRTTP to Vandegrift.



Photo Number: 4

Comment: November 15, 2006, Twin ponds looking northwest.



Photo Number: 5

Comment: November 22, 2006, drainage along the west side of the access road from Mainside, looking south.



Photo Number: 6

Comment: November 22, 2006, water of the U.S drainage along the west side of the access road from Mainside, looking north



Photo Number: 7

Comment: November 22, 2006, drainage along east side of the access road from Mainside, looking south.



Photo Number: 8

Comment: November 22, 2006, culvert under the access road from Mainside, looking west.



Photo Number: 9

Comment: November 22, 2006, culvert under the access road from Mainside, looking east.



Photo Number: 10

Comment: November 22, 2006, drainage channel along the access road from Mainside, looking east.



Photo Number: 11

Comment: October 13, 2006, access road from Stuart Mesa Housing to Stuart Mesa Road, looking south toward the mudflat east of the project area.



Photo Number: 12

Comment: October 20, 2006, access road from Stuart Mesa Housing to Stuart Mesa Road, looking south.



Photo Number: 13

Comment: October 20, 2006, mudflat, non-jurisdictional wetland, east of the project area, looking east.



Photo Number: 14

Comment: October 20, 2006, access road from Stuart Mesa Housing to Stuart Mesa Road, looking north.

Appendix B

Record of Non-Applicability

**RECORD OF NON-APPLICABILITY (RONA) FOR THE MARINE CORPS BASE
CAMP PENDLETON P-110 WASTEWATER CONVEYANCE PIPELINES
AND ASSOCIATED FACILITIES
CLEAN AIR ACT CONFORMITY, SAN DIEGO AIR BASIN**

INTRODUCTION

The U.S. Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* in the 30 November 1993, Federal Register (40 CFR Parts 6, 51, and 93). The U.S. Navy published *Clean Air Act General Conformity Guidance* in Appendix F, OPNAVINST 5090.1B CH-3, dated 17 October 2002, which has been used by the Marine Corps as interim USMC Conformity guidance. These publications provide implementing guidance to document Clean Air Act Conformity Determination requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable implementation plan before the action is taken (40 CFR Part 1, Section 51.850[a]).

The general conformity rule applies to federal actions proposed within areas which are designated as either nonattainment or maintenance areas for a NAAQS for any of the criteria pollutants. Former nonattainment areas that have attained a NAAQS are designated as maintenance areas. Emissions of pollutants for which an area is in attainment are exempt from conformity analyses.

The proposed action would occur within the SDAB portion of Marine Corps Base (MCB) Camp Pendleton. This portion of the SDAB is currently in nonattainment of the 8-hour ozone (O₃) NAAQS and is a maintenance area for carbon monoxide (CO). The SDAB attains the NAAQS for lead, NO₂, SO₂, PM₁₀, and PM_{2.5}. Therefore, only project emissions of CO and O₃ (or its precursors, volatile organic compounds (VOCs) and oxides of nitrogen (NO_x)) are analyzed for conformity rule applicability.

The annual *de minimis* levels for this region are 100 tons of VOC, NO_x, and CO, as listed in Table B-1. Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels (40 CFR Part 1, Section 51.853[b]) and are not regionally significant (totals less than 10 percent of projected regional emissions for that pollutant) (40 CFR Part 1, Section 93.153).

Table B-1. Conformity *de minimis* Levels for Criteria Pollutants in the San Diego Air Basin

<i>Criteria Pollutant*</i>	<i>De minimis Level (Tons/Year)</i>
Carbon Monoxide (CO)	100
Volatile Organic Compounds (VOC)	100
Oxides of Nitrogen (NO _x)	100

* The SDAB is in attainment for CO, but it is designated as a maintenance area for this pollutant. A conformity analysis is applicable in pollutant maintenance areas. Ozone precursor emissions include VOC and NO_x.

PROPOSED ACTION

Activity: The components of the Proposed Action consist of modifications to wastewater conveyance pipeline routes, dimensions of reclaimed water reuse areas, and addition of facilities such as pump stations and power poles. All project activities would occur within the SDAB portion of MCB Camp Pendleton.

Proposed Action Name: P-110 Wastewater Conveyance System, MCB Camp Pendleton.

Proposed Action Summary: As part of the long-term compliance strategy identified in the TTP EIS, construction and operation of the wastewater conveyance pipelines and associated facilities would allow MCB Camp Pendleton to meet regulatory standards and increase the reuse of reclaimed water on Base. The proposed action is needed to accommodate numerous project design changes and additions to the construction effort.

Air Emissions Summary: Based on the air quality analysis for the Proposed Action, the maximum annual emissions estimated for the Proposed Action would be below conformity *de minimis* levels and would be less than 10 percent of projected regional emissions (Table B-2).

Date RONA prepared: February 12, 2007.

EMISSIONS EVALUATION AND CONCLUSION

The Proposed Action consists of construction of the P-110 wastewater conveyance system and associated facilities at MCB Camp Pendleton. No operational emissions would occur as a result of the Proposed Action; therefore, only emissions resulting from construction activities have been estimated. Air pollutant emissions produced from the proposed construction were estimated using the most current methods, then compared to the conformity *de minimis* thresholds to determine their significance. Emission sources associated with the Proposed Action would include combustive and fugitive dust emissions generated by construction equipment. Construction emission estimates were obtained from the *Air Force's Air Conformity Applicability Model* (ACAM) (USAF 2004).

The Marine Corps concludes that implementation of the Proposed Action would not exceed conformity *de minimis* thresholds for applicable criteria pollutants nor would it produce emissions that are regionally significant (i.e., greater than 10 percent of the SDAB emissions budget). The emissions data supporting these conclusions are shown in Table B-2, which summarizes the air quality analysis calculations, methods, data, and references. Therefore, the Marine Corps

concludes that formal Conformity Determination procedures are not required, resulting in this Record of Non-Applicability.

Table B-2. Estimated Project Conformity-Related Emissions - Tons per Year

Activity/Fiscal Year	Pollutant		
	VOC ¹	NO _x ¹	CO
Construction emissions	1	8.5	9.5
Conformity <i>De minimis</i> thresholds ⁽¹⁾	100	100	100
Exceed threshold?	No	No	No
San Diego Air Basin (SDAB) forecasted emissions for 2005*	68,000	69,131	342,261
Exceed 10 percent of SDAB emissions?	No	No	No

* Source: CARB 2006b

Notes:

⁽¹⁾SDAB is currently a maintenance area for the 1-hour federal O₃ standard and a basic nonattainment area for the 8-hour federal O₃ standard; VOCs and NO_x are precursors to the formation of O₃.

RONA APPROVAL

To the best of my knowledge, the information presented in this Record of Non-Applicability is correct and accurate and I concur in the finding that the Proposed Action does not require a formal Conformity Determination.



J.B. SEATON III
Colonel, U.S. Marine Corps
Commanding Officer, MCB Camp Pendleton

6 Mar 07

Date

Air Quality Calculations and Assumptions P-110 Supplemental EA – MCB Camp Pendleton

Construction

- Pipeline disturbance areas = 119.37 acres or 5,199,778 sqft
- Pump Station construction = 23,450 sqft ~ 1 acre
- Temporary construction area = 110268.37 sqft ~ 3 acres

ACAM MODEL INPUT

Proposed Action:

- 15 months total = 450 days (Nov'06-Feb'08 – estimated by CDM)
- Phase 1 = 225 days
- Phase 2 = 225 days
- Period = 2007 Quarter 1
- Acres to be graded = 119.37 acres
- Acres to be paved = 3 acres
- Sqft of construction = 23,450 sqft
- **Controls:** covered watered twice daily, 2ft freeboard for truck hauling, unpaved hauling and watered twice daily, and soil kept moist at all times.

Emissions: Tons per year

(divide total emissions by 2 since the project will be spaced out over 2 years).

CO	= 19/2 = 9.5
NO _x	= 17/2 = 8.5
VOC	= 2/2 = 1
SO ₂	= 2/2 = <1
PM ₁₀	= 67/2 = 33.5
PM _{2.5}	= 0/2 = <<1

Construction Information**Construction Description**

P-110 EA

Maximum of 20 characters

No Multi-Family Units: No Single-Family Units: Sq Ft Commercial/Retail Units: sq. feetSq Ft Office/Employment Units: sq. feet

Start Date of Construction:

Year: Quarter: **Phase 1 Information:**Duration of Phase 1: daysGross Area to be Graded: acres**Are Any of the Following Dust Controls in Place?****Soil Piles**☒ Covered Or Watered
Twice Daily☐ Automatic Sprinkler
System Installed☐ No Controls**Exposed Surface/Grading**☐ Watered Twice
Daily☒ Watered with Frequency,
Keeping Soil Moist at All Times☐ No Controls**Loads**☒ At Least 2 Feet of
Freeboard☐ Secure Cover☐ No Controls**Truck Hauling Road**☒ Unpaved and Watered
Twice Daily☐ Paved☐ No Controls**Phase 2 Information:**Duration of Phase 2: daysTotal Acres Paved with Asphalt: acres

OK

Cancel

Conformity Screening Assessment

Conformity Code: **GREEN** (Conformity determination is not required based on applicability screening.)

San Diego ANG

Tons/Year Emissions For 2007

	CO	NOx	VOC	SO2	PM10	PM2.5
Proposed Action Emissions:	13	15	2	2	67	0
De Minimis Thresholds:	100	100	100	N/A	N/A	N/A
10% of Regional Emissions Inventory:	67786	12309	9446	N/A	N/A	N/A
San Diego ANG Emissions:	677863	123093	94459	6027	80746	N/A

Previous Year

Next Year

Exit

Regional Inventory Year is 2002

Installation Emissions Inventory Year is 2002

County Attainment Status Year is 2004

Ozone Transport Region: NO

PSD Class I Area: NO

Conformity Screening Assessment

Conformity Code: **GREEN** (Conformity determination is not required based on applicability screening.)

San Diego ANG

Tons/Year Emissions For 2008

	CO	NOx	VOC	SO2	PM10	PM2.5
Proposed Action Emissions:	6	2	0	0	0	0
De Minimis Thresholds:	100	100	100	N/A	N/A	N/A
10% of Regional Emissions Inventory:	67786	12309	9446	N/A	N/A	N/A
San Diego ANG Emissions:	677863	123093	94459	6027	80746	N/A

Previous Year

Next Year

Exit

Regional Inventory Year is 2002
Installation Emissions Inventory Year is 2002
County Attainment Status Year is 2004
Ozone Transport Region: NO
PSD Class I Area: NO

